MC

September, 1957

the Manufacturing Confectioner

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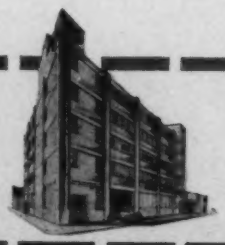

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Swift

To Serve Your Industry Better

MC candy business

Fanny Farmer has bought the factory and production facilities of Mary Lee Candies, Inc., of Norwalk, Ohio. Gorden W. Schroedel, Mary Lee president, said that the firm's plans are indefinite as yet, but that he hopes that the firm will find manufacturing facilities in the Norwalk area to continue the business. Transfer of the property is due next May first.

Leonard D. Griffiths has been appointed executive vice president of Fanny Farmer Candy Shops, Inc. He has been associated with the firm for over 20 years.

W. F. Schrafft & Sons has modified their traditional exclusive distribution through franchised candy wholesalers. This fall they will have a parallel food brokerage organization, which will handle six new gum and jelly packages and six new chocolate items, all in the 25¢ to 39¢ range. In addition they will handle the Schrafft bar line, the only item also handled by their regular jobbing organization.

D. M. Smith, manager of the EVANSTON, Illinois plant of D. L. Clark since it was opened in 1953, has been promoted to manager of the firm's main plant in Pittsburgh. Donald M. McNutt, with Clark four years, will manage the Evanston plant.

James Candy Company has started business in Chicago making hard candy. It is headed by James Weiss.

Ralph A. McKee, Jr. has been promoted to assistant sales manager of D. L. Clark Candy Co. He joined Clark ten years ago, and was previously with H. J. Heinz Co.

Fred Gregor, formerly of New York, has joined NECCO as special assistant to the factory manager. Gregor operated his own kitchen and candy shops in New York, specializing in a line of high grade chocolates.

The new officers for the Chicago Candy Club are president Gene Vogler, vice president Bob Goldstein, secretary Adolph Stankus and treasurer E. J. Peterson.

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WCSA Midyear Meeting

Members John Morrow, Phil Gott and Ralph Lee of the Western Confectionery Salesmens Association enjoy their before-breakfast appetizer of Western Punch (whiskey sours), a very popular innovation at this year's meeting.

NCSA Convention

Mr. and Mrs. Hy Falkowitz, Mrs. Dick Reese and Sollie Rogoff at the County Fair Nite at the National Confectionery Salesmens Association meeting in Buffalo.

New England Retailers

Jacques Leek, president of the New England Retail Confectioners Ass'n and vice president of Brighams, Inc., presiding. At left is Ken Miner, president of Brighams and speaker for the meeting. Jim Gray of Merckens Chocolate and secretary of the ass'n is on the right.

Boston Candy Show

Above; Dr. Hemond, owner of Len Libby's candy stores in Maine, with Mrs. Shirley Brown who manages the stores, talking to Harry Cole of Paper Goods.

Below; Charlie Connelly of Connelly's Old Salem House looks at Wallace Surprise Balls shown by Mildred Kredenser.

Bottom; Ray McNeill of Wallace getting an order from the crowd from Brown Pharmacy of New Bedford.

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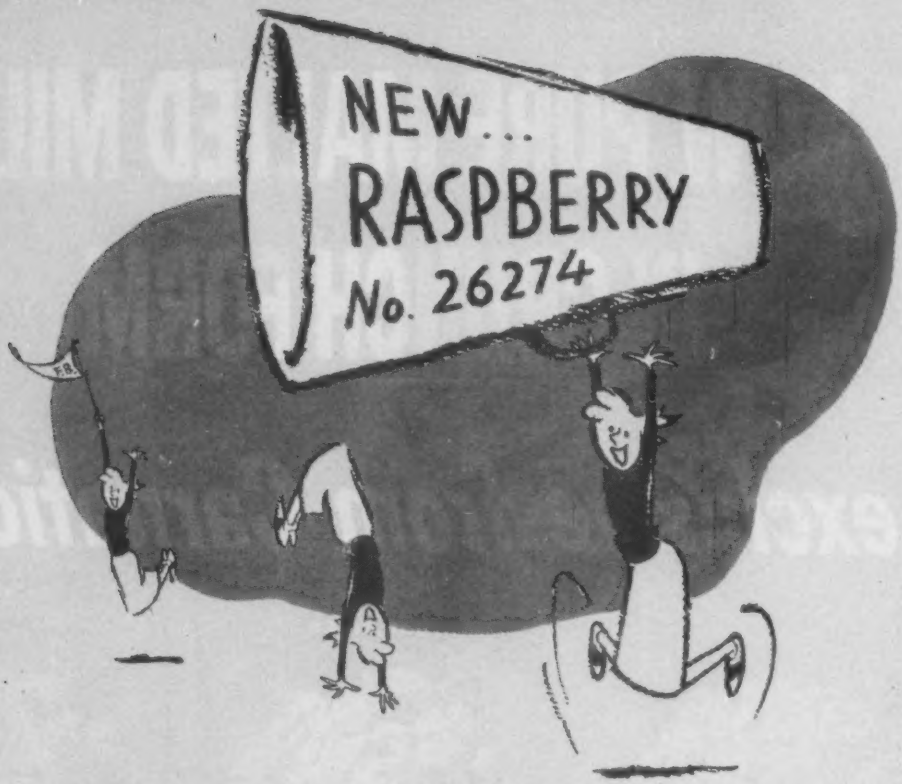

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the Manufacturing Confectioner

with International Confectioner

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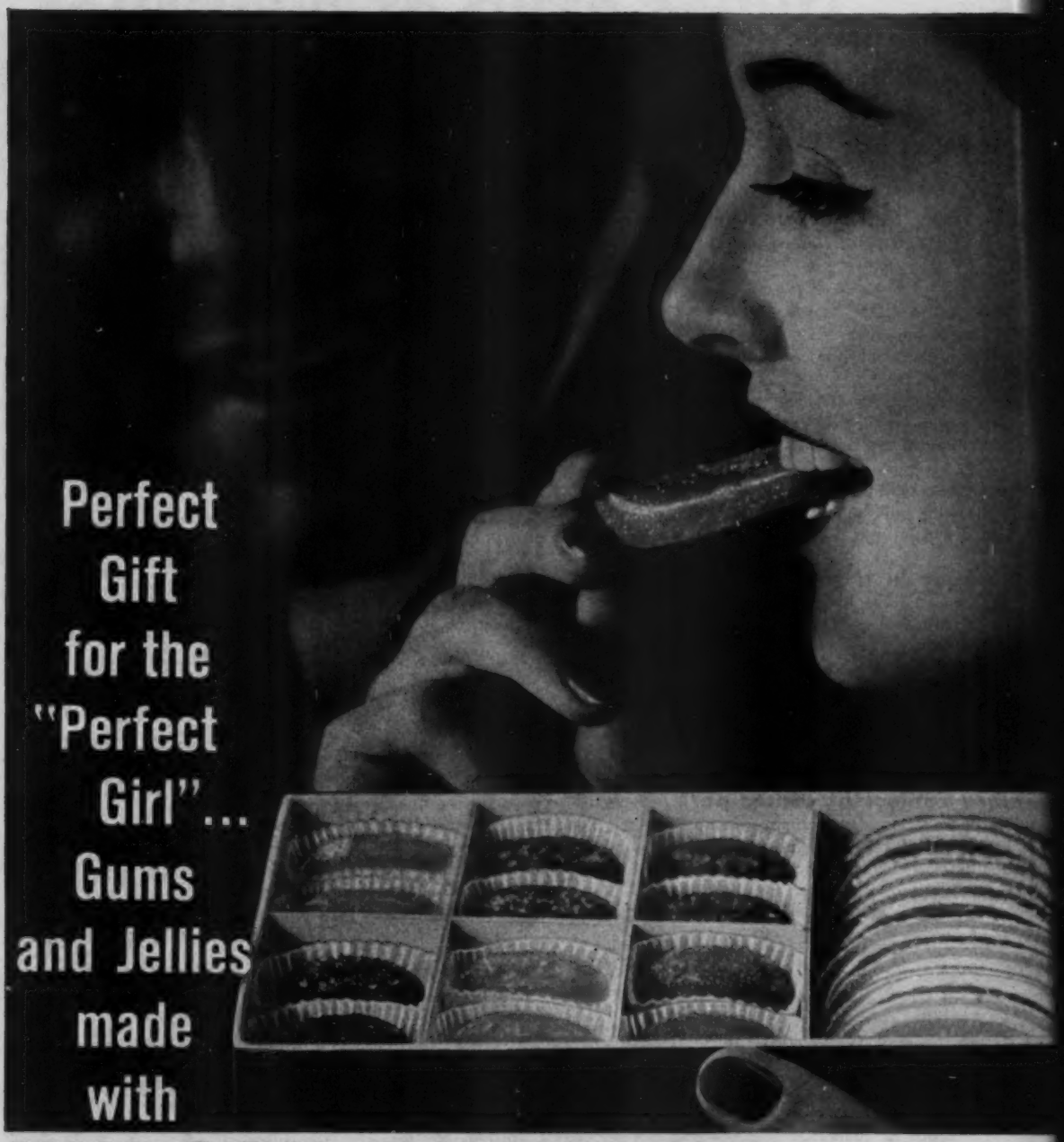

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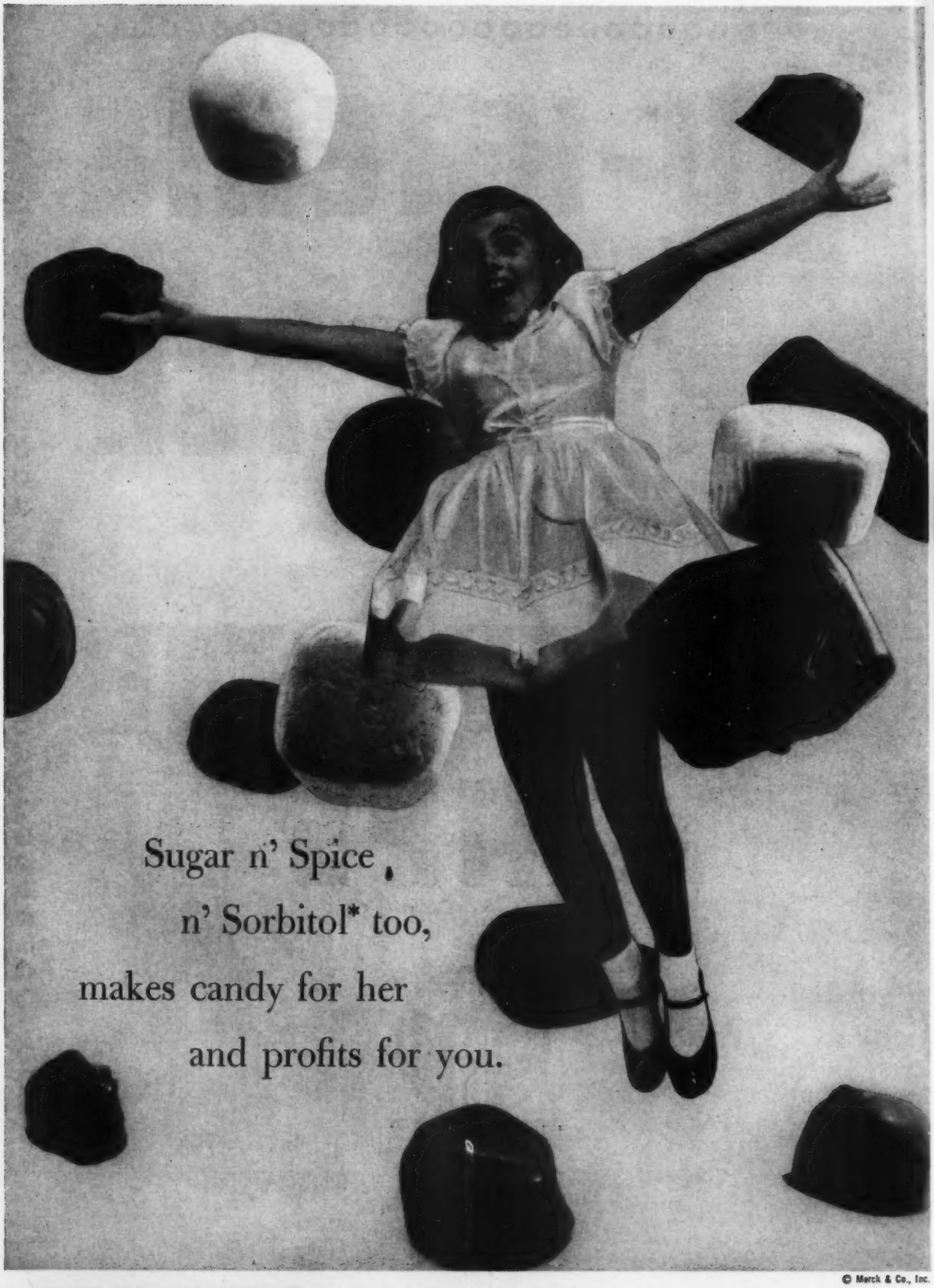

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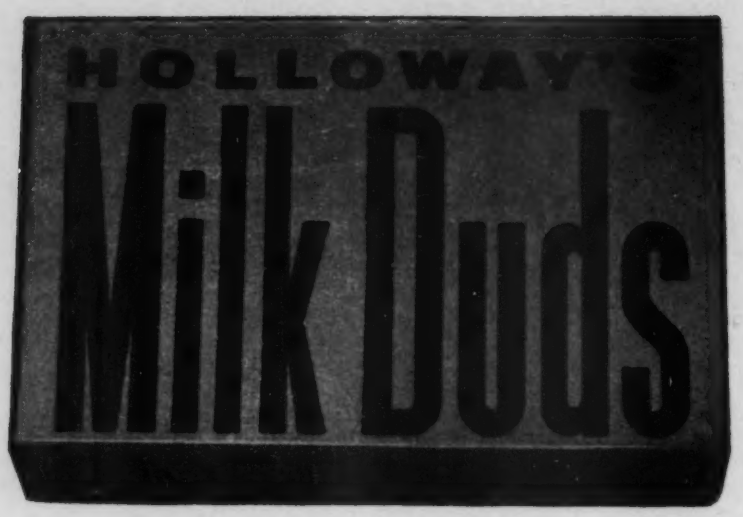

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the Manufacturing Confectioner

September 1957

Volume XXXVII—Number 9

A new specialty corn syrup

BY CLIFFORD CLAY
Wynnewood, Pennsylvania

A study of the effect of the composition of starch syrups (corn syrup) on hard candy was made and reported by Dr. E. Linderman of "The Institute for the Investigation of the Uses of Grain" at Detmold / Lippe in Germany. This report appeared in "Gordian" of June 25, 1954.

Dr. Linderman made up a series of syrups in which dextrose and maltose appeared in varying proportions. All had the regular 42DE and 80% solids. Standard samples of hard candy were made from each and these tested for moisture absorption. This is not even a partial review of Dr. Linderman's article which should be carefully studied. It is simply an explanation of why the writer took a deep interest in the subject. Figures showed that as the maltose increased in amount at the expense of the dextrose, candy made from the syrup became less hygroscopic.

It is impossible to produce a syrup through acid hydrolisis alone which will have the desired high maltose content at the ordinary 42 DE.

Illies & Linderman showed that hydrolysis of a pure starch by means of an acid and then a beta-amylase would result in a syrup having 42 DE and approximately only 7% dextrose. It was very low in hydroscopicity.

Mr. William Duck of the research team of the Pennsylvania Mfg. Conf. Assn. at Franklin & Marshal College took an interest in the matter and tried to make the syrup according to the "Gordians" description. He was only partially successful.

The writer took the matter up with Dr. Linderman and received immediate and 100% co-operation. It would appear that the actual enzyme used by the doctor had a large part in the success of the process. This beta-amylase had been prepared by Kalle & Co. of Weisbaden from soya and, unfortunately, they had none in stock nor were they prepared to make any until such time as they had a supply of the type of soya residue from which the original came. Dr. Linderman found a very small amount in his laboratory and forwarded it to me. With this sample, Mr. Duck prepared a syrup which conformed to the "Gordian" specifications.

This syrup did all it was claimed it would do in spite of its high viscosity. It was very difficult to boil, particularly as F & M had no equipment, at that time, for boiling in vacuum. Any addition of sucrose reduced the viscosity and simplified the problem of boiling, but the hygroscopicity of the resulting candy rose in proportion to the amount of sucrose added. In spite of all difficulties, the low moisture absorption of candies produced from the pure syrup was so marked that a factory sized trial was imperative.

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With the cooperation of one of the wet corn millers, The Brock Candy Co. of Chattanooga secured a drum of the syrup made up of laboratory sized batches.

At the Brock plant we drew enough of this syrup to make a batch of suitable size to cook in a small vacuum pan. The syrup boiled fairly easily in the side kettle and when drawn into the vacuum pan, cooked to a 10% moisture content without difficulty. The resulting candy was somewhat hard to handle but could be stretched into sheets thin enough to apply as a skin on the surface of a pulled peppermint batch. Such a pulled batch was prepared and divided in halves. One half was covered with the special glucose batch and the other half with a skin prepared from the clear unpulled center. Both spun easily and were formed into drops. We will discuss their relative shelf life further on.

We encountered an unexpected difficulty with the syrup as we went deeper into the drum. We were unable to cook the next two batches at all. They simply lay in the side kettle, and bumped; would not boil at all. The next batch cooked fairly well. It would appear that the trouble lay in the fact that the makers must have had somewhat varying effects from the enzyme action and that the viscosity of the syrup was such that the batches remained as strata and were drawn from the drum in batches, almost as they had been poured in. I have written Dr. Linderman and he has experienced the same thing when it could be traced back directly to the forgoing cause.

When the syrup is substituted for standard C. S. U., in a batch of hard candy, it cooks with ease to 2% moisture or slightly above or below, and the goods show some improvement in shelf life over those made in the regular way. This improvement exists, but it is not sufficient, in the writer's opinion, to warrant the increased difficulties in handling.

When we used the pure syrup, cooked to 9% or 10% moisture, as a skin the improvement in shelf life was amazing. The use of the syrup in this way is not nearly so difficult as our first description suggests. A batch can be cooked up in vacuum and before it cools can be run into sheets, sized down to the right size and thickness, and piled in any reasonably cool place. These sheets will not stick and can be warmed to flexibility on a warm table before use.

To return to the two batches of pulled peppermint drops described in a forgoing paragraph. Samples from the two batches were submitted to a number of tasters who had no idea of the purpose of the tasting; simply to determine differences. The only sensible comment from three tasters who said that they got no flavor for several seconds after the drops were put in their mouths. They referred to the Linderman C.S.U. coating. After that there was no difference. No adverse comment was made. We eliminate, "Too sweet", "Peppermint rancid", Color too bright", without even stating to which the comment belonged.

These criticisms are classed as irrelevant, absurd, and not sustained by fact.

The writer filled two polyethylene bags from each of the two experimental batches and took them to Philadelphia. Now it is said that anyone who can live in Philadelphia can live anywhere. This is probably true of candy as well. One bag was divided between various people for their examination. The remaining two bags were folded once over and fastened with a paper clip, then left on the writer's desk. Inside of the first week the goods from the standard batch were running and had to be thrown away. It was summer in Wynnewood and on several days the atmosphere in the room reached 95°F and 85%R.H.

The bag filled with drops having a skin of the special corn syrup remained on the desk for 14 months and was then thrown away. If it had just LAIN on the desk, it would have been still salable. On several occassions, the surfaces of the drops had become sticky, that is "Tacky" but had dried out again without serious loss of gloss and without sticking together. The two faults which caused the decision to throw them out were; the pieces were dirty from frequent handling and the skin was somewhat wrinkled, probably largely from the same cause.

During the summer, when the samples were made, one of Brock's salesmen was given several ordinary 5 lb. card boxes with the standard wax liner folded over the goods. Drops from the experimental CSU skin batch were poured loose into the boxes and these were taken by car to Florida, around the salesman's route and back to Chattanooga. At the end of the trip, the goods poured readily out of the box and were in excellent condition.

A sample of the drops was sent to Dr. Linderman through Dr. Heiss. The following is an excerpt from the letter the writer received in reply from Dr. Linderman;

"Your sample here, is stored since one week's time in a very moist atmosphere and I only can confirm your observations that these candies compared to other commercial used products keep extraordinarily well."

The serious difficulty in using this syrup appears to be its extreme viscosity which makes it difficult to handle at the usual 80% solids (43°Be'). Below this concentration, some danger of fermentation is indicated. "The Federal Research Institute of the Cereal Industry" at Detmold / Lippe has assured me that beta-amylase of the required nature and quality can be supplied by Kalle & Co. or by Rohm and Haas of Germany and that it is properly standardized.

To one who, like the writer, worked with American corn syrup of even 50 years ago, the improvement which research has accomplished in that period is outstanding. It would seem certain that with the present background, a moderate research program would make it possible for this desirable syrup to be modified so that it could be handled and still not lose its effectiveness. Very certainly enough has been said, written, and demonstrated to call the attention of the refiners to the need of the candy industry for such a material.

The writer has stirred the matter up to where it is quite possible that work is well in hand. He has heard so, but certainly would be the last to KNOW.

"Have you come to a verdict, gentlemen?"

Clinton Corn Processing Company, a division of Standard Brands, Inc., has just completed a million dollar research center at the company's factory in Clinton, Iowa. The research in this laboratory will include work on the wet-milling process, itself, and all of the products and by-products of this basic process. George T. Pekham, Jr. is research director in Clinton and John M. Newton is director of Technical Sales Service.

TEXTURE

What single dairy ingredient improves texture and cuts milk costs up to 50%?

How do you achieve better texture?...By combining the right ingredients! The very chemical content and structure of Sweet Dairy Whey makes it a preferred dairy ingredient ...insures the smooth, even, uniform texture that consumers demand in modern candy products.

Why whey? Because more and more candy manufacturers are discovering that dry whey provides exactly the right balance of milk carbohydrate and milk protein, while saving them up to 50% on dairy ingredient costs. And look at these additional advantages over costlier dairy ingredients!

1. Better color...truer flavor.
2. Richer in lactalbumin, for moisture-retention and longer shelf-life.
3. Greater versatility of body and texture and improved handling characteristics.
4. Uniform in quality, meets or exceeds U. S. Extra Grade standard.

Now tailor-make your dairy ingredients... blend whey with your present milk...for optimum performance and savings up to 50%. *For complete information and a working sample, please write our Technical Service Department 115.*

New Whipping Agent
ANGEL-WHIP
replaces up to 50% of the Egg White or other whipping agents. While reducing ingredient costs, Angel-Whip retards corn syrup separation. Makes shorter, tenderer finished products...increases shelf-life... retains original freshness.

Valley Fresh **Sweet Dairy Whey**

...Appleton, Wisconsin • World's Largest Producer of Whey Products

Pure food gelatin in candymaking

BY W. F. BRONSON
U-Cop-Co division of Wilson & Co., Inc.

Fibrous protein collagen is the chief constituent in the white connective tissues of mammals.

This fibrous material occurs to some extent mixed with other proteins of the organisms. It occurs in varying amounts in muscle meat and is a definite factor in the toughness of steak.

By hydrolysis, that is, an interaction with water, the insoluble protein collagen is converted to the substance known as gelatin which is readily soluble in warm water. When a tough piece of meat is simmered for several hours it becomes more tender. A chief factor in this change is the conversion of the collagen fibers to gelatin. In the ageing of beef, the conversion is brought about by the action of enzymes which occur naturally in the tissues. We do not wish to imply that this is the only change which takes place but it is definitely a major factor.

You have all observed the fact that the chilled broth from soup stock which has been cooked for several hours will form a gel. This is due to conversion of collagen to gelatin and is essentially the process used for production of gelatin on a commercial scale.

The major protein in hides and bones is collagen. It is for this reason that these materials are used as the chief source of gelatin.

Raw materials, after treatment with alkali or acid, are charged into large cooking vats. They are then extracted with successive portions of water. The first extraction is at a relatively low temperature like 130° F. The last of the collagen is converted to gelatin by boiling.

Hydrolysis does not stop with conversion of collagen to gelatin but continues with heat and the gelatin molecule is broken down to smaller units. When this happens there is a reduction in gel strength. Because of this, each successive extraction of gelatin after the first has a lower gel strength. The gelatin manufacturer would like to make all high test material but, unfortunately, all of the collagen will not readily convert to gelatin at relatively low temperatures. On the other hand, the progressive change in the gelatin molecule gives us a series of products which have a variety of working propertics.

When the gelatin molecule breaks down to smaller fragments, the foaming characteristic tends to increase. However, this foam is more fragile and breaks down more easily because of reduced gel strength. It is the gelling factor which prevents the break-down of foam when using this stabilizer.

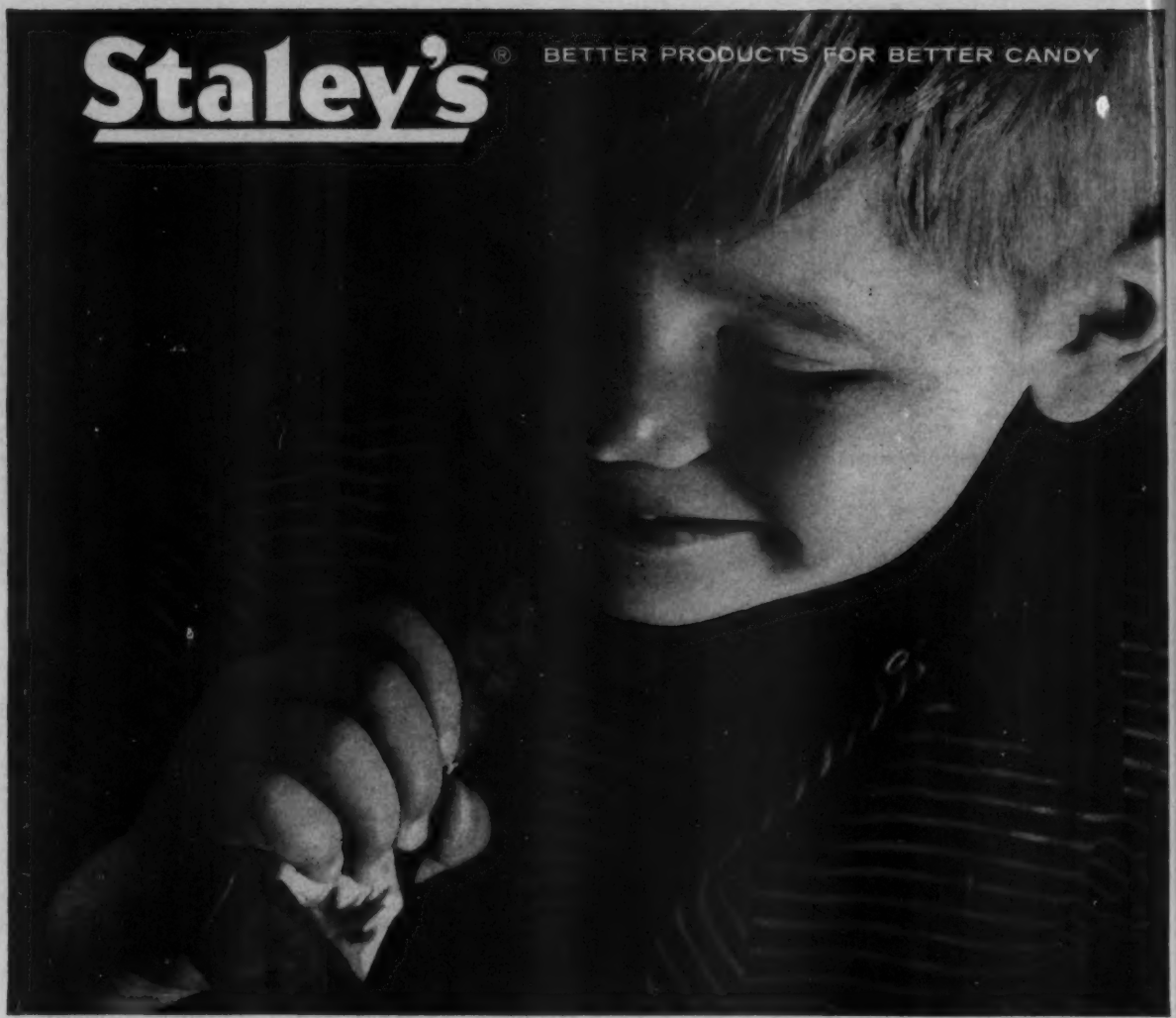
Gelatin is rated on the basis of its gel strength. The device used in the industry for this rating is the Bloom gelometer. It gets its name from the man who invented the mechanism. The test is essentially as follows: A 6-2/3 percent solution of gelatin is prepared by a specified procedure and then held in a water bath at 10° C. for 17 hours.

Test bottle containing the gel is placed on the platform of the gelometer and the weight in grams determined which will force a 1/2 inch round plummet, 4 millimeters into the gel. Values on normal products are in the range of 50 to 300 Bloom.

No two extractions of gelatin are exactly the same. The raw materials are from biological sources and like the proverbial reference to blades of grass, every skin or bone varies in some manner from the next unit of the same kind. Differences in pH, temperature, and time of cooking are reflected in differences in the final product. Manufacturing procedures vary between plants and this is a factor in differences in performance of products from different suppliers. If a manufacturer sold a gelatin from an individual extraction he would be at a loss to duplicate the material on future shipments.

Duplication of gelatin types is chiefly by historical procedures. That is, raw materials of the same type are treated in a manner as nearly the same as possible to treatment of previous batches. Factors involved are type of acid, pH, time and temperature. Although the exact tests cannot be predicted as stated previously, the gelatin is of the desired type and variations are smoothed out by the blending together of several runs. It is a simple matter to duplicate gel strength by blending but the important factor is the uniformity of performance in a given application. In marshmallow, such factors as pH, viscosity, and whipping properties, in addition to gel strength are of importance. Blended lots of gelatin for marshmallow application are incorporated in a standard marshmallow formula in the laboratory. This is a final check to be sure that the gelatin matches the performance of previous lots in the same grade.

Staley's® BETTER PRODUCTS FOR BETTER CANDY



Sweetose fights candy dryness—makes good eating a sure thing

Narrow humectant range of Staley's enzyme-converted corn syrup increases shelf life—lowers costs! We gave Sweetose "the works" . . . simulating the severest conditions of jungle humidity and desert aridity in our laboratories. The result? As an all-weather humectant, Sweetose proved superior to all other humectants tested.

This means candies made with Sweetose hold an appetizing moisture level through the most extreme variations of humidity and temperature . . . allowing you, Mr. Confectioner, to cash in on a longer shelf life with bigger profits, expanded distribution.

Advantages to be had using this "Cream of Corn Sweeteners" don't stop here. Leading confectioners with plants all over the country depend on Sweetose to improve taste, texture and tenderness in their wares.

With all this, Sweetose has proved economies . . . both in sweetening and in cutting sweetener handling costs. For additional information, call your Staley Representative at the branch nearest you or write today to . . .

A. E. Staley Mfg. Co., Decatur, Illinois

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Sweetose®
CORN SYRUP

LATINI DIE POP MACHINE
WITH WRAPPING ATTACHMENT

225 formed and wrapped pops per minute.
Low labor cost operation — one operator does the work of four people.
Die pop is free of fins — eliminating scrap.
Weight of pop is adjustable — without change of dies.

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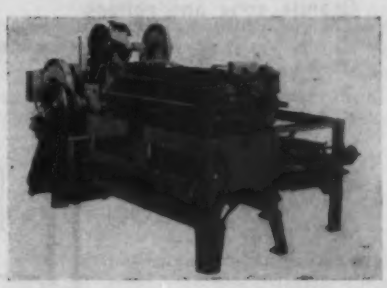

Only one operator required to produce up to 1,200 lbs. per hour.
You can produce.
Balls—clear, pulled or honeycombed filled—9/16" to 1½" diameter.
Sunbeam Starlights: stripes brought down to center without expensive inlay.

BERKS HARD CANDY MIXER

Mixes color, flavor and acid in 75 to 125 pound batches at rate of 1000 lbs./hr., 10% scrap may be included. Saves labor and floor space. Assures uniform mixing and constant rate of production through the day.

M.F.P. Stick-Master
patent pending

New Style—Twister, Cutter & Straightener
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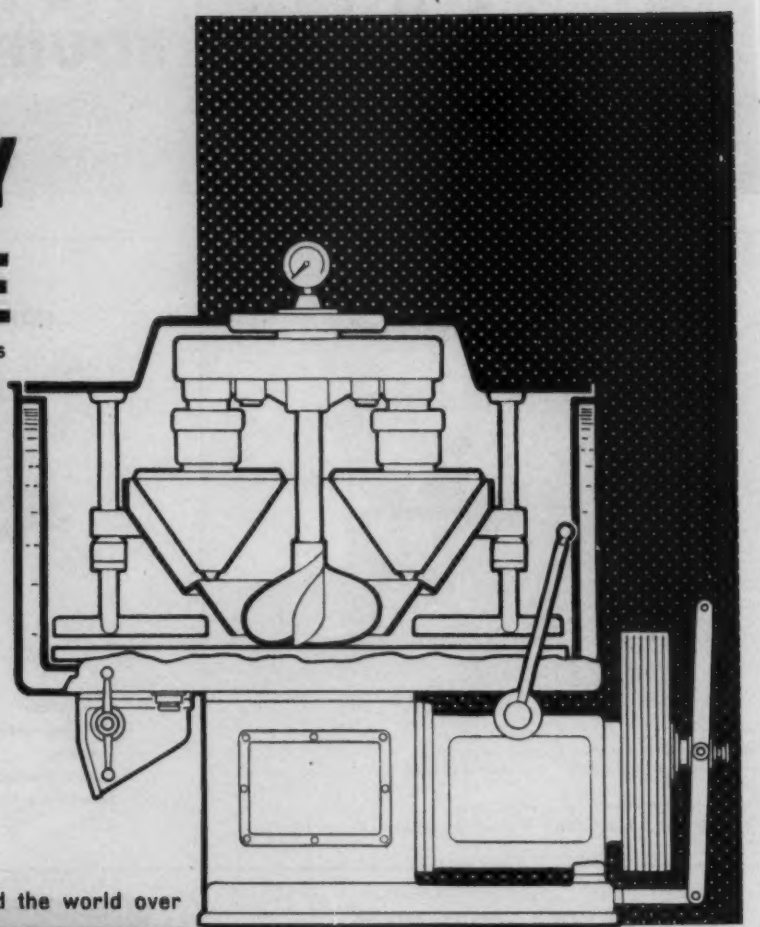

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Offering all the advantages of longitudinal conches, but saving.

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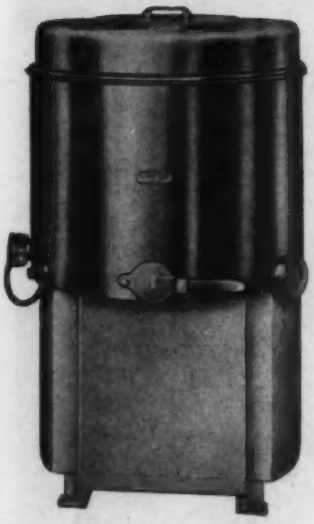
SMITH Production Equipment



CHOCOLATE MELTING and TEMPERING KETTLE

One of the most popular makes and a must in every chocolate operation. Chocolate is efficiently and economically melted and tempered so that it is just right for center covering or other use. Easy to install, electrically heated, thermostatically controlled, full bottom drainage. Completely sanitary. Available in 100, 250, 375 and 500 lb. capacity sizes.

CANDY BOX PACKER

Many confectioners, whether they are retailers or wholesalers have found this machine the ideal answer for box packing various assortments of chocolates. If insufficient space makes your packing inefficient and costly or present method is inadequate then the "Space-Saver" is the answer. Non-tiring motion for packers increases production.

PONY CUTTER

Cuts fast and accurate, and in many sizes, those candies that are laboriously done by hand. A girl can easily and safely cut such items as caramels, nougats, peanut chews, coconut pieces, etc. It can't be surpassed for saving time and labor and will prove a valuable asset to your business.

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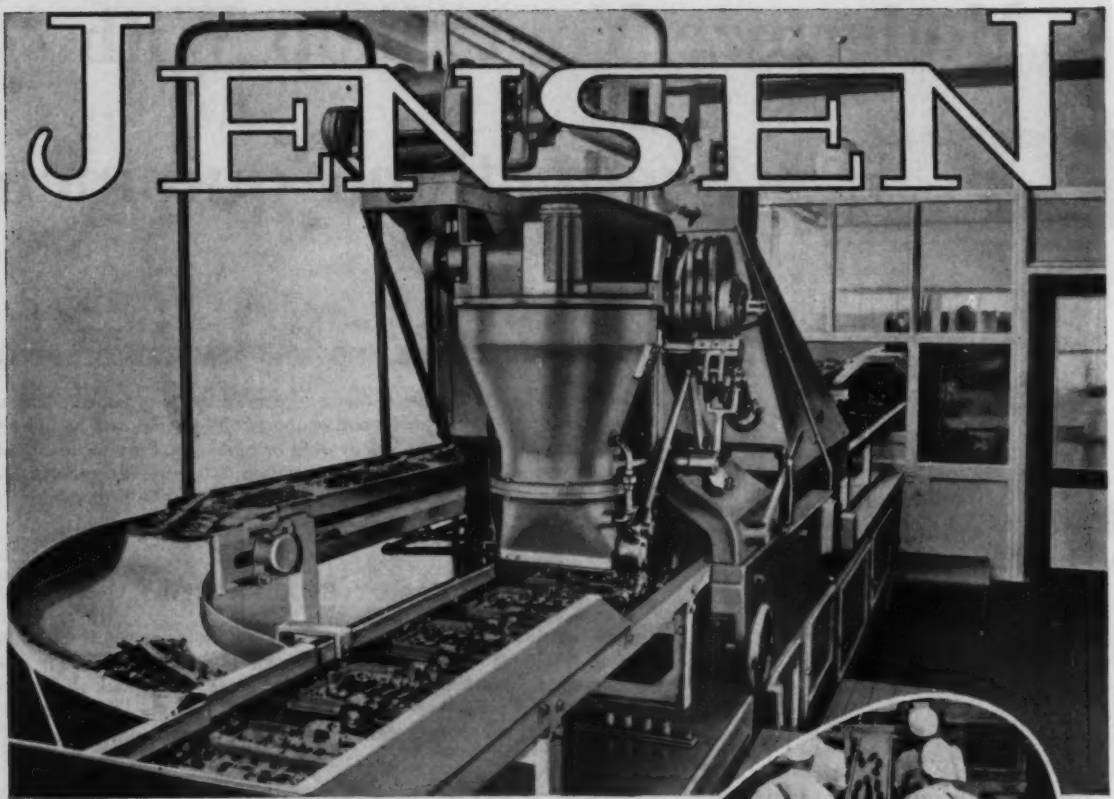
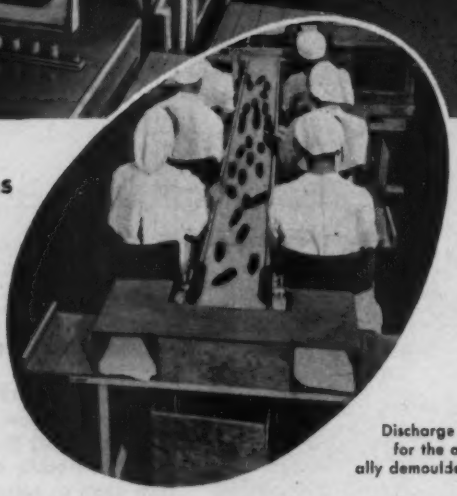
JENSEN



Special Type of JENSEN Moulding Installations Designed for Hollow Chocolate Figures

Rational production of hollow figures
of any shape and size up to 7½ x 10 inch.
Makes whole figures without fins — or
half figures (f. inst. half eggs).
Accurate weight depositing.
Quick change over to new production.



Discharge conveyor for the automatically demoulded goods.

The continuous mould chain conveyor—the principle of the JENSEN installations—is maintained also in this special machine for moulding hollow figures. From the precise quantity of chocolate deposited into the mould the hollow figure is formed while the closed mould is rotating in two directions. The mould circuit can be composed by articles of different shape and size.

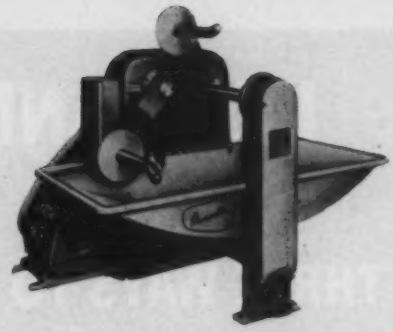
JENSEN means
Maximum production of perfect goods at precision weight on minimum floor space.
Fully automatic working
Economy — Hygiene
Unsurpassed versatility

MIKROVÆRK A/S

32-38, SYDMARKEN, SØBORG
(COPENHAGEN) DENMARK
TELEGRAMS:
MIKROFACT - SØBORG

Only superior equipment can produce superior candy economically

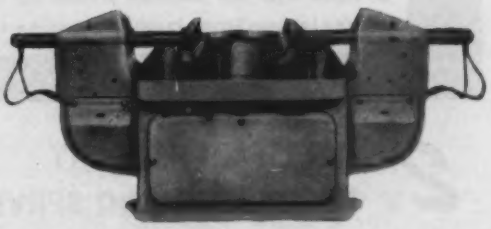
All Hansella candy processing machines are designed and manufactured with just one purpose in mind—the high production of fine quality candy at lower cost. Shown here are only a few units from the extensive Hansella line, which includes equipment for every function in the candy plant.



Hansella Sugar Pulling Machines

Handles *all* types of hard or soft batches, because of extra-sturdy construction. Water-cooled arms prevent sugar from sticking, make batch removals easy—no hammering, no chopping, no sugar waste.

Two models available—130A, handling batches up to 175 lbs., and 39C, handling batches up to 80 lbs.



IM 30 Automatic Kneading Machine

Ends mixing by hand, duplicating manual kneading actions—does the work in less than half the time, and with no supervision. Batch sizes can range from 40 to 90 lbs. making it ideal for both small and large manufacturers.

Other Hansella candy processing equipment includes:

Automatic Precooking Equipment
Automatic Robot Cookers
High Capacity Batch Cookers
Vertical Batch Formers and Rope Sizers
Cooling Conveyors
Forming Machines
Hot and Cold Slabs
Automatic Packaging Machines

Hansella 19H Batch Former and 65D Rope Sizer Combination

Provides completely automatic and continuous feeding for every type of candy batch—low or high cooked, filled or unfilled, pulled or unpulled—at speeds up to 265 feet of rope per minute. Handles many rope sizing machine operations previously considered impossible.

Write for full information about any of these top quality units, and learn how they can improve operations in your plant.

Hansella

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GRAND AND RUBY AVENUES, PALISADES PARK, NEW JERSEY
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LEHMANN *offers* THREE WAYS TO CUT PRODUCTION COSTS *...thru increased efficiency, better process control*

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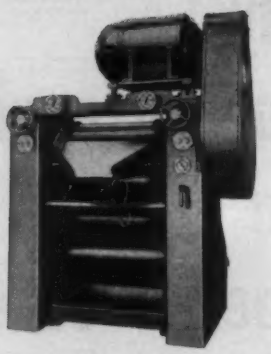

An assortment of Roller Mills for processing either paste or liquid chocolate . . . Rapid-Cycle, Heavy Duty Paste Mixers and Emulsifiers . . . Liquor Mills for the finest grinds possible . . . Cracker and Fanners for maximum nib recovery . . . Also, a variety of Tempering, Mixing and Storage Kettles in either horizontal or vertical type construction.

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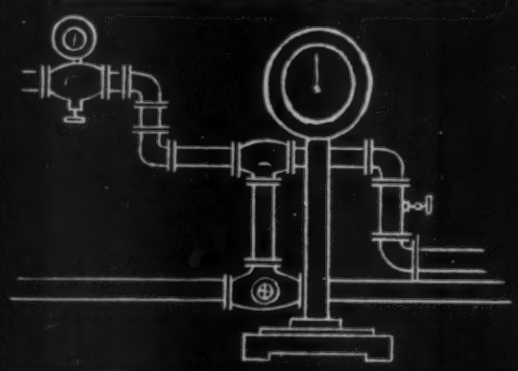
Lehmann Reconditioning of Roller Mills and other Processing Machinery comprises an engineered approach and investigation into all factors contributing to operational efficiency. Worn equipment is literally rebuilt from the ground up and restored to its maximum productivity.

3. PLANT LAYOUT SERVICE

Lehmann Engineers will design and fabricate for individual plant requirements. Standard commercial units will be specified and used wherever possible . . . whether manufactured by Lehmann or not . . . to provide efficient, low-cost handling, trouble-free operation and control.



For complete information on any Lehmann Service, contact the office nearest you.

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Pneumatic conveying of bulk sugar

BY EVAN FISHER
B. W. Dyer & Company

Probably the first attempt to move solids in an air stream was the vacuum cleaner. Everyone knows how a vamuum cleaner operates. relying on velocity to keep suspended dirt particles moving through the tube. The same principle, on a much larger scale, was utilized to unload grain ships many years ago, and has been widely applied to a variety of other solids for years.

The reverse of the vacuum system, pressure, is somewhat more recent, but is still an old art. Unlike a vacuum system, which is limited by atmospheric pressure to theoretic maximum of 14.7 lbs. per square inch, a pressure system can be built up to any desired pressure.

Early pressure systems had a tendency to rely on relatively high pressures, and the resultant high velocities, to move solids through rather large pipes. In a text book published in 1915 I found a paragraph on pneumatic conveying from which the following is quoted:

" It (pneumatic conveying) is used for conveying grain, slack coal, sawdust, shavings and other light material. Grain has been carried over 2,000 feet horizontally and raised to any desired height. The pressure system is simpler and requires less pipe than the vacuum system, but the latter is more common, and is adapted to a greater variety of conditions. The principal advantages of the pneumatic system, as against all types of mechanical conveying, are simplicity, adaptability to peculiar conditions. the little attention required, few repairs and shutdowns."

The quote is from Kent's "Mechanical Engineer's Pocket Book."

From this it is apparent that the advantages of pneumatic conveying were recognized over forty years ago, and were in use.

However, none of the materials conveyed by air in those days were foodstuffs, unless grain is so considered. In any event, they were not such products as flour and sugar which went, unchanged, into edible products.

The first attempts to move sugar pneumatically, as far as can be learned, were inaugurated on both coasts at approximately the same time. Tea Garden Products, in San Francisco, was the first; its system went into operation in 1947. In 1948, Life Savers installed a pneumatic conveying system in its plant in Portchester, which is still in use. Tea Garden moved some years ago and the first pneumatic system was lost.

In both these attempts to take advantage of the simplicity of pneumatics, the volume of sugar to air was low, in the order of ½ to four pounds of sugar per pound of air, and the velocities high, around 4,000 to 9,000 feet per minute. This meant that the sugar moved through the pipe lines at somewhere around 60 miles an hour and, because of the small volume of sugar in the line, had plenty of room to bounce around. The result was that the sugar crystals took a terrific beating and were badly broken down in passing from the storage bin to process. This was the principal disadvantage.

A second disadvantage was the large volume of air required in relation to the amount of sugar. On days of high humidity considerable moisture was carried into the system, and tended to make the sugar sticky and hard to handle.

The result was that in spite of the recognized advantages of pneumatic conveying, not many such systems were installed.

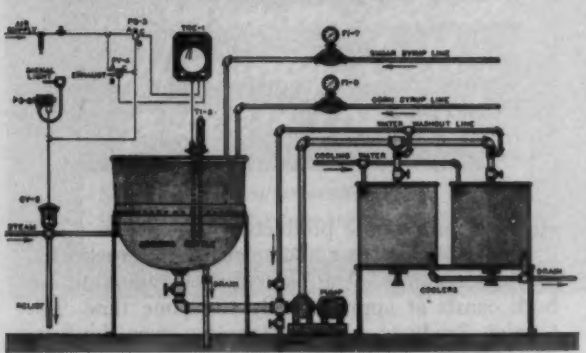
However, in 1950, Amalgamated Sugar Co. had an idea. Much had been learned about pneumatic conveying in the previous few years, and a new concept of moving solids by air was developing. It had been found that if a solid particle could be surrounded by air, the friction of the particle against other particles was virtually eliminated and the whole mass, air and solids, could be handled in a pipe line almost like a liquid. This concept is termed "fluidizing" of solids.

END YOUR "END-POINT" WORRIES!

Here's what you get when you put a Taylor Automatic End-Point Control System in your plant:

Protection against over-cooking and under-cooking—the "end-point" temperature of the kettle's contents cannot be exceeded. If the batch is right it will be perfectly concentrated to give maximum yield.

Consistently uniform product quality—every batch is as good as the one before it.



Big savings in material and labor—even an inexperienced operator can handle a whole line of kettles. Your production goes up!

Complete chart record of each day's production—you know what you made and how you did it . . . batch by batch.

A completely coordinated candy kettle control system—a Taylor End-Point installation includes a FULSCOPE* Recording Temperature Controller, control valve, pilot valve, air-push button and all required accessories. All the operator does is push a button. The Taylor Automatic End-Point Control System is ideal for *sugar and glucose boiling kettles, fondant kettles, caramel cooking kettles, jam and jelly kettles,* and many other critical cooking operations.

There's a Taylor control system for almost every phase of your confectionery processing. Specify "Taylor-equipped, as usual," when ordering new equipment or modernizing your present plant. Write today for **Catalog 900.** Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

*Reg. U. S. Pat. Off.

Taylor Instruments
MEAN ACCURACY FIRST

Acting on this, Amalgamated's engineers designed a pneumatic truck to deliver dry sugar. This truck made two important advances over previous pneumatic sugar conveying practice. It increased the ratio of sugar to air materially, and, to avoid the stickiness caused by moisture, it operated on a closed system, returning the air from the bin through a dust collector to be reused until the truck was empty. The truck was placed in operation in Seattle and was used to make deliveries to Richardson & Holland and Washington Chocolate Co.

Besides minimizing two of the principal disadvantages of earlier installations, the formation of sugar "dust" and the introduction of moisture, the truck eliminated the need for the customer to move the sugar from the truck to his bin, thereby saving the cost of considerable equipment. The self-powered truck literally pumped its load into his bin as though it were a liquid.

The idea spread rapidly on the West Coast and in the next few years every sugar company had one or more "blower trucks" in operation.

Today there are about 50 pneumatic trucks in operation on the West Coast. Another is making deliveries in Minneapolis.

The use of pneumatic trucks was slower in the East and it was not until 1956 that the first ones went into service. Both American Sugar Refining Co. and National Sugar Refining Co. started them in Philadelphia late that year. American now has one in New York and National and Sucrest Division of American Molasses Co. will have them soon.

Meantime the in-plant use of pneumatic conveying was also growing steadily and there are now several firms who are prepared to install so-called "dense flow" equipment. This type of system is relatively new here in the East but is an old story on the West coast.

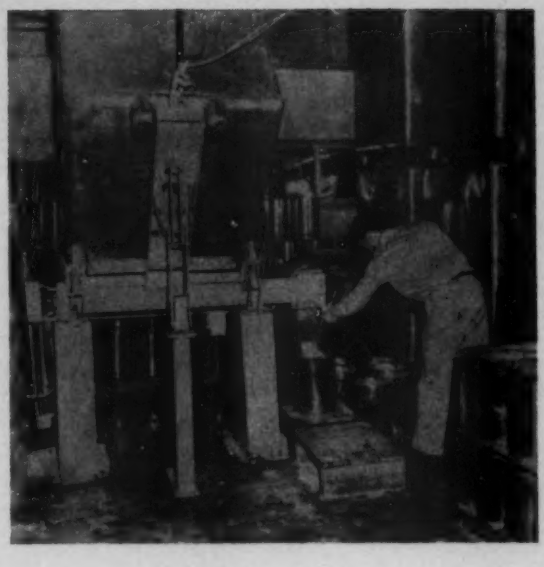
Its great advantage, as with pneumatic trucks, lies in loading more sugar into a given volume of air. Instead of less than 4 pounds of sugar per pound of air, present day practice has increased the sugar load to 75 to 200 pounds. At the same time the earlier 60 mile an hour velocity has been reduced to a walk, 600 to 1,000 feet per minute.

The "dense flow" technique has practically eliminated the degradation of sugar crystals and has minimized the effect of moist air.

Another factor has also materially improved the performance of pneumatic conveying, namely proper conditioning of the sugar of refiners. In the early days this factor was largely overlooked, but occasional rather bitter experience has taught the cane refiners and beet processors that special pains must be taken in preparing a batch of refined sugar before it is loaded into a carrier for delivery.

As a result of five to ten years of experience by equipment manufacturers and sugar producers, modern pneumatic conveying systems have proven to be efficient and dependable.

The end



Bulk sugar in a small batch operation

One firm has made the use of a bulk sugar system pay off in spite of using sugar in production in only twenty five pound batches.

M. Polaner and Sons, New Jersey manufacturers of jams and jellies, used to receive sugar in 25 pound bags as all of their formulas were based on 25 pound units. Though this required a 15¢ per hundredweight premium over normal bagged sugar, it was worth this to eliminate weighing out the sugar.

The firm converted to bulk operations through the purchase of fourteen Tote bins and now receives all of their sugar in that fashion. They continued their system of using sugar in 25 pound units, however, and accomplished this by weighing out sugar from the Tote bins into cans.

The bins are placed on a self-discharging Tote Tilt which incorporates a screw conveyor that delivers the sugar to one side of the equipment directly over a scale. The scale is tared for the tins so that an operator can place the tin on the scale and accurately draw 25 pounds into it.

In spite of the fact that they enjoy none of the usual automatic handling benefits which usually accrue to bulk sugar users such as automatic large scale weighing and batching into kettles, this firm has found that the cost of this system was paid for within two years, exclusively on the basis of the lower price of bulk sugar over that of the same product in 25 pound bags. In addition, they are assured of clean, free flowing sugar in these bins which are hermetically sealed at the refiner.

PALMER presents

an outstanding improvement in

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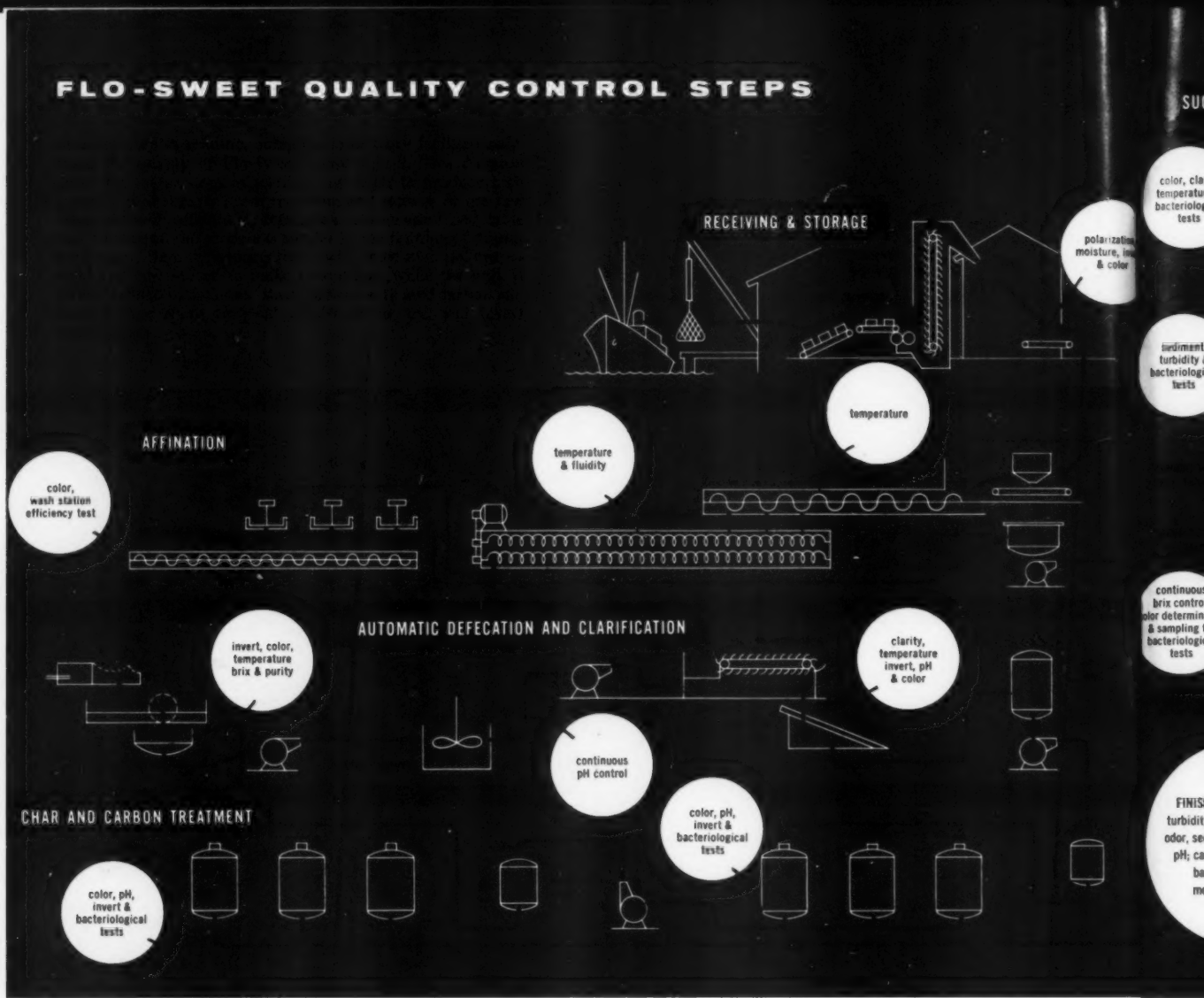
OR JOHN SHEFFMAN, 152 WEST 42nd ST., NEW YORK CITY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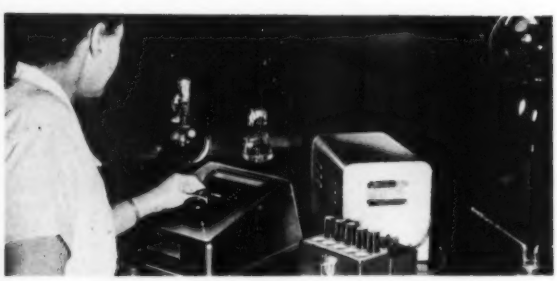

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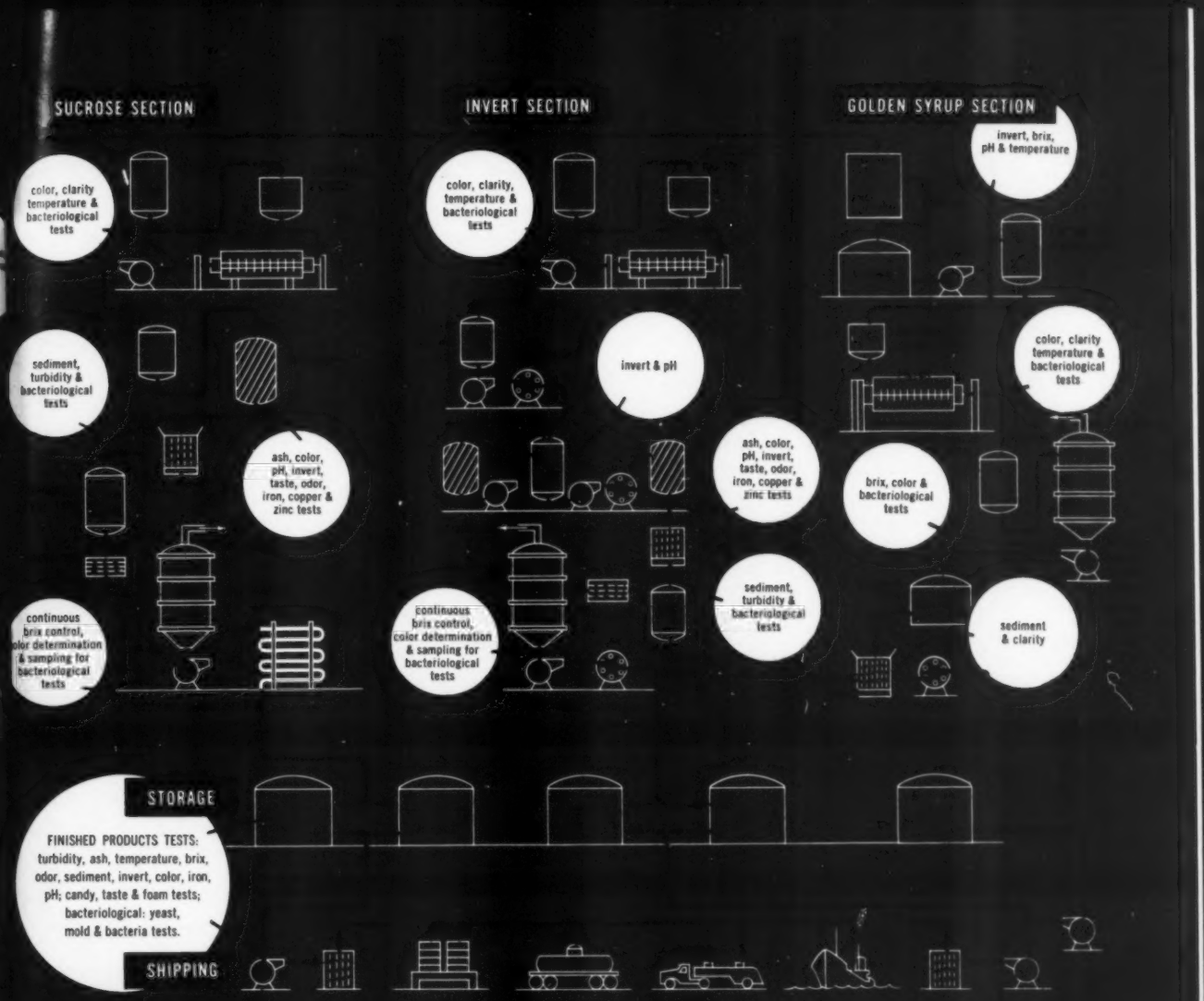
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Confectionery Analysis and Composition

by Stroud Jordan and Katheryn E. Langwill

This volume, first published in 1946, is still the only published reference work on the subject of confectionery analysis. It concerns itself with applicable data that covers composition of basic raw materials as well as that of the finished confections in which they have been employed.

Choice Confections

by Walter Richmond

This new book contains 365 formulas for making two batch sizes, one for hand work and one for machine work. There are instructions for each batch, with suggestions as to the methods of coloring and flavoring for variety. A glossary is included, both of candy and chemical terms. All of the formulas are cross indexed, and a complete chapter is presented on chocolate.

How to Salvage Scrap Candy

by Wesley H. Childs

This booklet is a complete revision of the author's work "Modern Methods of Candy Scrap Recovery" published in 1943. A considerable amount of information has been collected since that time on methods and techniques of salvaging scrap candy. This booklet covers all types of candy, and gives many practical and economical ways of converting scrap candy into a useful form for re-use.

A Textbook on Candy Making

by Alfred E. Leighton

Here is a textbook where the reader can learn the basic fundamentals of candy making, the "how" and "why" of the various operations in non-technical terms. Particular attention is given to the function of raw materials, and why each is included in a formula.

The Candy Buyers' Directory
The Directory of Candy Brokers

1957 Edition

The Candy Buyers' Directory is an alphabetical and classified directory of wholesale candy manufacturers giving information on what type of candy is made by each firm, and in some cases the type of packaging used. The Directory of Candy Brokers is a geographical listing of over 600 candy brokers giving the accounts that they handle, the territory covered and the number of salesmen.

Profits Through Cost Control

by Frank Buese and Eric Weissenburger

This material deals with the problems of cost control in candy plants including planning for profit. The emphasis is on planning operations so that a profit will be made, and in early detection of those factors which will adversely affect profit.

- ☐ How to Salvage Scrap Candy **$2.00**
- ☐ Choice Confections **$10.00**
- ☐ A Textbook on Candy Making **$6.00**
- ☐ The Candy Buyers' Directory and The Directory of Candy Brokers **$4.50**
- ☐ Confectioner Analysis and Composition **$6.00**
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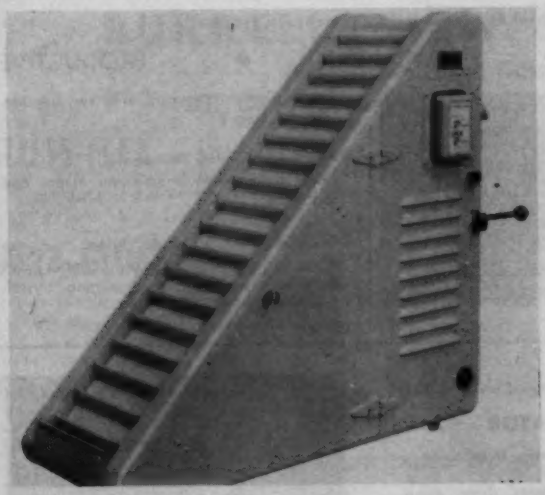
New Products

Heat sealable Saran has been developed with the trade name Saran-O-Seal. It is reported that this film can be run on most conventional heat sealing packing equipment including the vertical forming, filling and sealing machines.

For further information write: Printon Corporation, 304 East 23rd Street, New York City, New York.

A new pocket pH Meter has been developed that is powered by six glass like batteries. It features the unique combination of glass and reference electrode with a thirty-six inch lead. The meter weighs two pounds and reads from two to tlelve pH within .1 pH.

For further information write: Scientific Instruments Division, Beckman Instruments, Inc., Fullerton California.



A portable elevating conveyor has been developed specifically for elevating candies from a starch casting machine to stock trays or boxes. The unit is mounted on casters so that it can be moved from one location to another or pushed aside when not in use. Speed may be fixed or variable between 25 and 125 feet of belt speed per minute.

Dimensions are 52 inches long, twenty one inches wide, and forty eight inches high. Minimum discharge height is 36 inches.

For further information write: Jabez Burns and Sons, Inc., 600 West 43rd Street, New York 36, New York.

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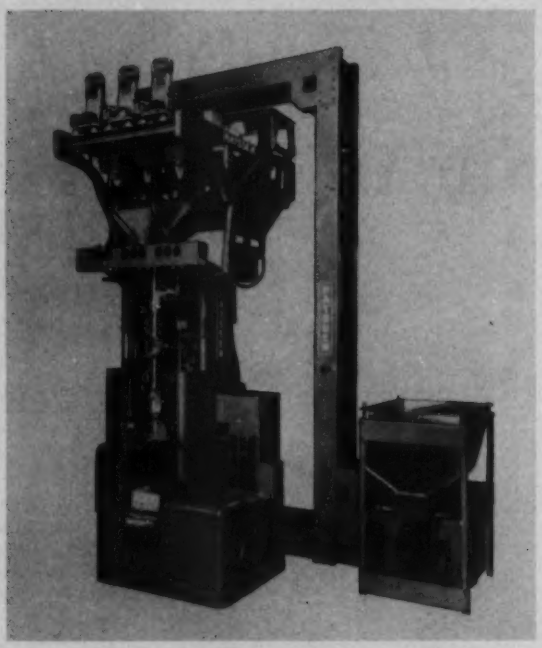


A single tube bag making, filling and sealing machine has been developed. The machine is particularly fitted for the operation that required very frequent size changes, and for the low volume operation.

For further information write; Hayssen Manufacturing Co., Sheboygan, Wisconsin.

A belting catalog of specialty belts for food use has been published. It includes descriptions of several types of belts for given conditions.

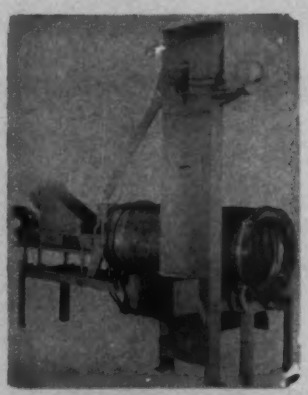
For further information write; Voss Belting and Specialty Co., 5645 N. Ravenswood Ave., Chicago 26, Ill.

A new starch cleaner has been developed that works on the principle of air blast cleaning. Candy from a starch casting machine travels through the machine on wire belts, and air blasts from revolving arms cleans the starch from the candy, and a dust collector keeps any from clouding the air.

For further information write; Wright Machinery Company, Durham, North Carolina.

A bulletin on bulk material handling and storage equipment has been published covering engineering data on vertical tanks, horizontal tanks, and pneumatic conveying equipment and system.

For further information write The Day Sales Company, 810 Third Avenue, N.E., Minneapolis 13, Minnesota.



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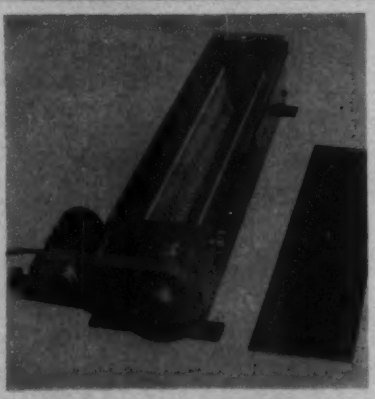

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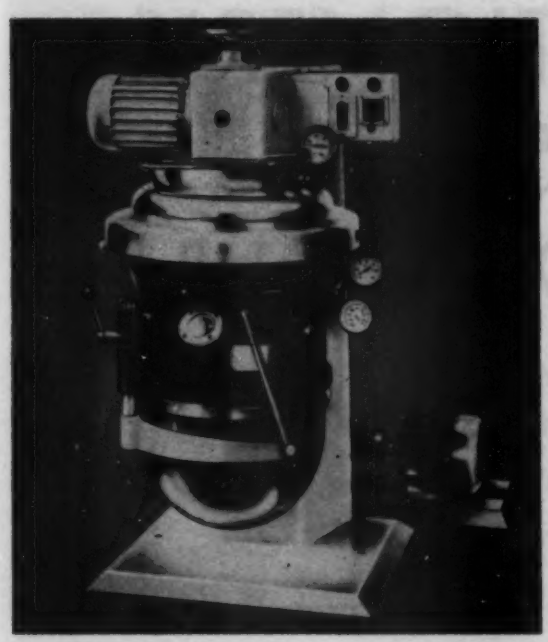

A small versatile vacuum cooker has been designed for smaller factories with a variety of cooking requirements. It is designed for a 120 pound batch and can cook either under vacuum or open. The cooking pan is copper and the outer shell is steel and is designed for a working steam pressure of 150 pounds.

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CONFECTIONERY ANALYSIS and COMPOSITION

By

Stroud Jordan, M.S., Ph.D.

and

Katheryn E. Langwill, M.S., Ph.D.

This volume, first published in 1946, is still the only published reference work on the subject of confectionery analysis. The pioneering work done by Dr. Jordan remains the standard in the field, making a second printing of his book necessary. This printing is in all respects identical to the first printing.

This volume concerns itself with applicable data that covers the composition of basic raw materials as well as that of the finished confections in which they have been employed.

In assembling this volume reference is made to applicable methods. Where satisfactory methods of analysis are of general knowledge they are incorporated by reference. All specially developed methods and procedures are incorporated in detail.

In the reconstruction of formulas from analytical data, certain basic assumptions must be made, and these are thoroughly explained. The second part of this volume deals with the several confection groups, and full discussion of particular analysis and calculation of composition problems of each group are discussed.

The book is expected to be ready for distribution by June 1. Use the order form below, your book will be mailed as soon as copies are available.

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Appendix

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CALENDAR

September 10, 11, and 12: The Cocoa, Chocolate, and Confectionery Alliance will hold a conference in London.

September 12, 13, 14: Michigan Tobacco and Candy Distributors Association, Ninth Annual Convention, Hotel Statler, Detroit, Michigan.

September 15, 16, 17, 18: Philadelphia National Candy Show, Benjamin Franklin Hotel, Philadelphia, Pa.

October 13-16: National Automatic Merchandising Assn. Philadelphia Convention Hall, Philadelphia, Pa.

October 25-26: Tobacco Distributors Assn. of N.J., Robert Treat Hotel, Newark, N. J.

October 28-30—Packaging Institute, Annual Forum, Statler Hotel, New York, New York

December 12-13, Western Confectionery Salesmen's Assn.. La Salle Hotel, Chicago.

1958

March 2-9: European Packaging Federation Congress, Dusseldorf, Germany.

April 23-25: Pennsylvania Manufacturing Confectioners' Assn. 12th Annual Production Conference, Franklin & Marshall College, Lancaster, Pa.

July 6, 7, 8, 9: Associated Retail Confectioners Annual Convention, Mark Hopkins Hotel, San Francisco, Calif.

July 6, 7, 8, 9, 10: National Confectioners Assn., Sheraton Palace, San Francisco, Calif.

August 3-7, National Candy Wholesalers Assn., Inc. annual meeting, Commodore Hotel, New York, N. Y.

Barnett to Loft's

Claude Barnett has been appointed assistant to Joseph Schiftner, Director of Production and Purchases for **Loft's Candy Shops.** Mr. Barnett, who is currently President of the New York Chapter of the American Association of Candy Technologists, was formerly Production Manager of Lucy Lynne Chocolate Company, the Production Division of Bard and Margolies, New York City wholesaler.

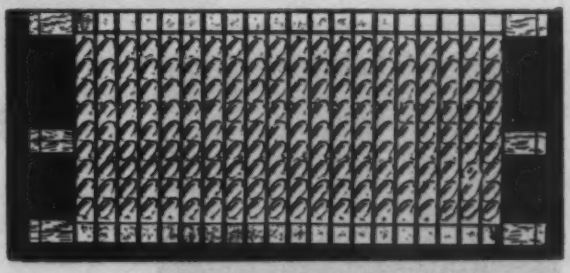
SUGAR REPORT

by Charles Fuchs

With the raw market now having declined from a high of 6.60 to 6.05 or 55 points, a downward adjustment in Northeastern refined prices is expected shortly and will very likely materialize before this appears in print. In the West two cuts of 15 points each or a total of 30 cents have developed on both beets and cane, the former selling at 8.50 and the latter at 8.70. Committments are being made for limited actual requirements and are not expected to change.

It would appear that a Northeastern price in the neighborhood of 9.00 can be expected, this being based on the normal refined spread added to the present raw price.

Barring unforseen developments, there is nothing in the immediate future to indicate anything but a quiet market for the balance of the year with the next and most important factor being the quota announcement for 1958 which is usually made public in mid-December. This, of course, will be the important influence for the trend next year, particularly if the world market returns to normalcy.



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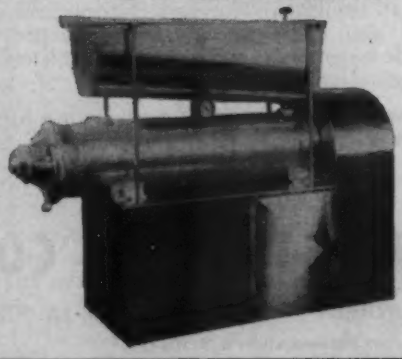

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Technical Literature

Flavors in Foods

Albert S. Henich, Food Research, Vol. 22, No. 1 (1957)—A start has been made in compiling current findings of flavor research. A recapitulation in form of brief abstracts of a selection of recent literature on flavor is given. Headings of classes are: 1. Chemical aspects of flavor by commodities, 2. Sensory testing and allied subjects, 3. Physiology of flavor and related topics. The scope of contemporary food flavor research is impressive.

Studies on Three Types of Gelatin

W. M. Ames, Jour. of the Science of Food & Agriculture, Vol. 8, No. 3 (1957)—Gelatin was prepared by three methods (exhaustive alkaline treatment, rapid conversion in presence of a small amount of acid and exhaustive pretreatment with acid) from one precursor and the properties were examined. Preparation of a pure gelatin may be workable on basis of these experiments, by giving a precursor a soak in acid followed by alkaline treatment, all types of impurities might be removed. A standard gelatin may be obtained from a diversity of sources.

Sweetness of Various Compounds and Its Measurement

Howard G. Schutz and Francis J. Pilgrim, Food Research, Vol. 22, No. 2 (1957)—Sixteen compounds (saccharin, dulcin, calcium cyclamate, levulose, DL-alanine, glycerol, mannitol, glycine, A-dextrose, AB-dextrose, galactose, D-mannose, sorbitol, maltose, lactose) were rated on a subjective intensity scale for sweetness at each of five concentrations. The method of single stimuli using this subjective intensity scale yields results which are meaningful and reliable and which are more easily obtained than the more traditional methods such as paired comparisons. The relationship between subjective sweetness and concentration was established as being basically logarithmic. The ratios of the concentrations of each of 15 of the compounds to the concentration of sucrose of the same subjective intensities were computed to determine their relative sweetness. As subjective intensity or concentration increases relative sweetness varies in one of three patterns depending on the compound.

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Maple Sirup: 10 Effect of Controlled Fermentation of Maple Sap on the Color and Flavor of Maple Sirup

J. Nagliski, L. L. Reed, C. O. Willits, Food Research, Vol. 22, No 2 (1957)—Studies have shown that the desirable flavor component of maple sirup can be increased several fold by heat treatment under special conditions. These studies were made to determine whether or not desirable changes in flavor and color of maple sirup can result from the fermentation of sap by individual species or combinations of various species of microorganisms. This work establishes that maple flavor can be intensified through the proper fermentation of the sap.

Retrogradation in a Starch Jelly Candy

Clarence Sterling, Food Research, Vol. 22, No. 2 (1957)—Retrogradation (crystallization) was measured in aging starch gels by various methods (cold water solubility, X-Ray diffraction, opacity, iodine sorption, enzymatic digestion). Most methods clearly showed an increase of crystallinity with time, but the rate of increase differed among them. Aging brought about no changes in the lattice dimension of the polysaccharide crystal.

Artificial Flavors

Michael Seidman, Food Manufacture, Vol. 32, No. 3 (1957)—Most people do not realize that materials carrying odor and flavor have been added to manufactured foods, or, if they do, assume they are mostly of "natural" origin. This is a tribute to the art and science of the flavor chemist. Flavor chemistry is an evolutionary process. Taste is as much subject to change as fashion. One ppm of methyl-beta-methylthiolpropionate (present in pineapple juice) is quite sufficient to exert an influence on the taste.

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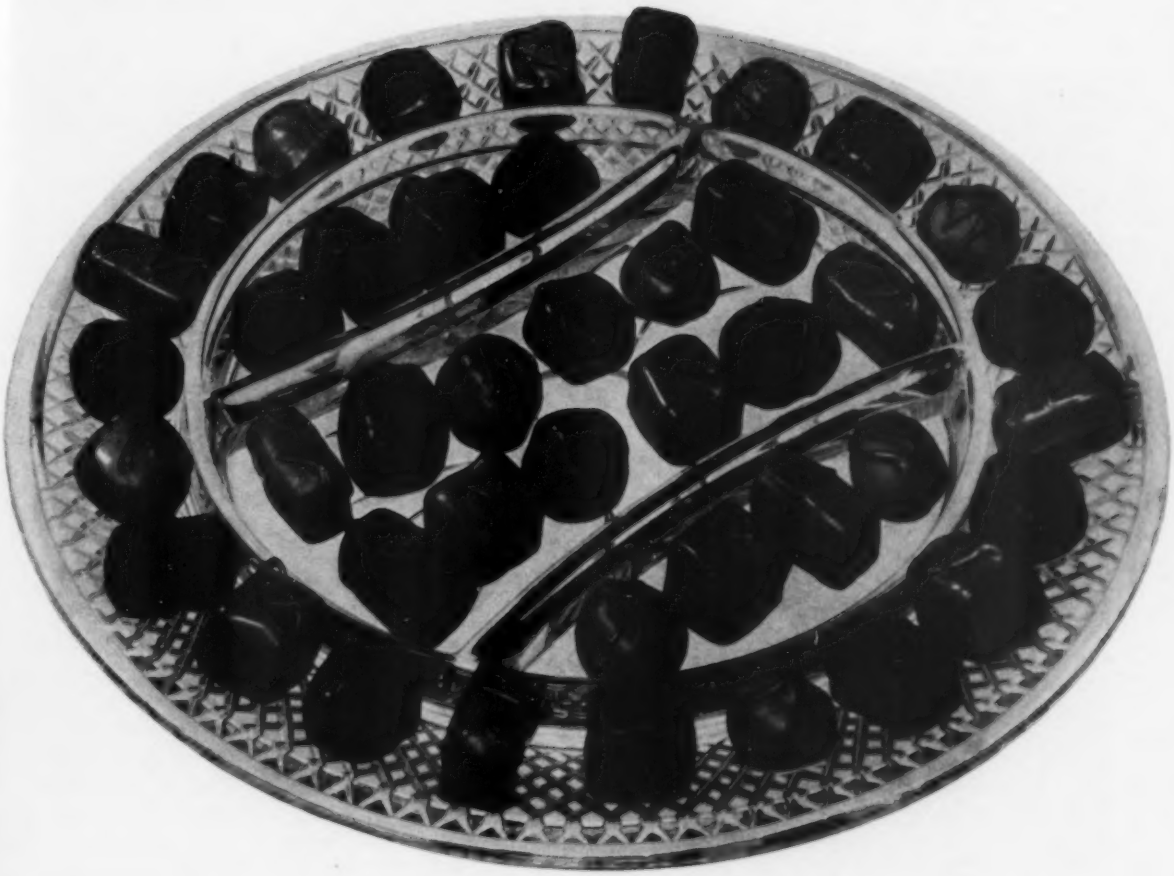

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CHOICE CONFECTIONS fills a long felt need for a book written primarily for the manufacturing retailer. The 365 formulas are given in two batch sizes, one for hand work, and one for machine work. There are separate instructions for working each sized batch, with suggestions as to the methods of coloring and flavoring for variety. A glossary is included, both of candy terms and chemical terms that candy men are apt to run into. All of the formulas are cross indexed for ready reference, and are grouped in chapters for convenience. A complete chapter is presented on chocolate, giving the information that is necessary to have in order to buy coatings intelligently and use them to the best advantage.

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During the past forty years Mr. Richmond has worked in some of the largest and finest candy plants in this country, both wholesale and retail. His experience is available to every retail candy plant in the world for only $10.00.

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The Manufacturing Confectioner Pub. Co.
418 N. Austin Blvd., ... Date
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Please send Mr. Richmond's new helpful book Choice Confections: Methods and Formulas which contains 365 candy formulas. I am enclosing $10.00

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The MANUFACTURING CONFECTIONER'S

Candy Clinic

The Candy Clinic is conducted by one of the most experienced superintendents in the candy industry. Some samples represent a bona-fide purchase in the retail market. Other samples have been submitted by manufacturers desiring this impartial criticism of their candies, thus availing themselves of this valuable service to our subscribers. Any one of these samples may be yours. This series of frank criticisms on well-known branded candies, together with the practical "prescriptions" of our clinical expert, are exclusive features of The MANUFACTURING CONFECTIONER.

Uncoated & Summer Coated Bars

Code 9F7
Summer Bar
4 ozs.—50¢

(Purchased in a chain grocery store, Chicago, Ill.)

Appearance of Bar: Good
Size: Good
Container: Cellulose wrapper, printed in brown. Imprint of mansion and grounds in black.
Bar: Bar is made of confectioners coating and roasted almonds.
Color: Good
Texture: Good
Almonds: Good
Taste: Good
Remarks: The best bar of this type we have examined this year. Highly priced at 50¢ for 4 ozs.

Code 9G7
Sugar Sticks
8 ozs.—39¢

(Purchased in a department store, Chicago, Ill.)

Appearance of Package: Good
Size: Good
Container: Cellulose bag printed in white and blue.
Piece: Piece is a turned hard candy stick.
Color: Too deep
Texture: Good
Flavors: Poor
Remarks: Suggest color be toned down and a better grade of flavors be used.

Code 8Z7
Pralines
8 ozs.—70¢

(Purchased in a candy store, Eastman, Ga.)

Appearance of Package: Good
Box: Oblong shape, one layer type. White glazed paper top printed in red on ends. Name etc. in center printed in red. Cellulose wrapper.
Appearance of Box on Opening: Good
Pralines: Pralines were about the size of a half dollar in diameter, each in a paper cup.
Color: Good
Texture: Good
Pecans: Good
Taste: Good
Remarks: One of the best pecan pralines we have examined this year. Well made, but for the price of 70¢ for 8 ozs. we suggest a few more pecans be added, and some pecan halves be used instead of pieces.

Code 9H7
Grained Mint Sticks
1 lb.—49¢

(Purchased in a department store, Chicago, Ill.)

Sold In Bulk:
Piece: Piece is similar to a Top Off Mint in stick shape. Piece has an inside colored foil wrapper and an outside cellulose wrapper.
Mints:
Color: Good
Texture: Good
Flavor: Good
Remarks: The best piece of this kind we have examined this year. Well made and a good mint flavor. Cheaply priced at 49¢ the pound.

Code 9J7
Filled Gum Drops
1 lb.—$1.00

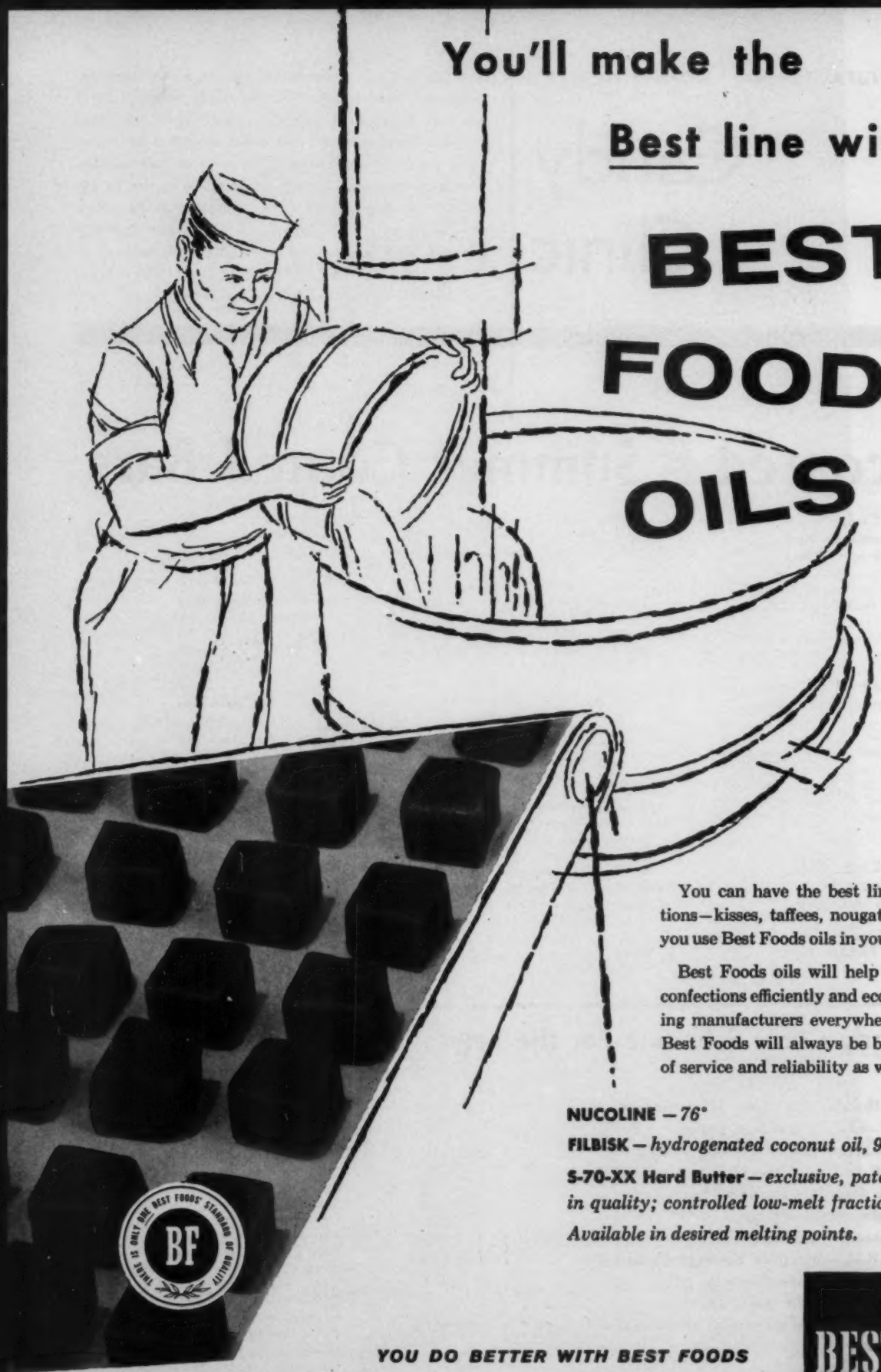
(Purchased in a food store, Chicago, Ill.)

Sold In Bulk:
Piece: Piece is a large gum drop with fruit centers.
Color: Good
Texture: Good
Crystal: Good
Flavor: Good
Fruit Centers: Hard and very tough
Remarks: We have examined filled gums with very fine fruit jelly centers at 75¢ to 85¢ the pound. Suggest centers in gums be checked. At the price of $1.00 the pound a fine center could be used.

Candy Clinic Schedule For the Year

JANUARY—Holiday Packages; Hard Candies
FEBRUARY—Chewy Candies; Caramels; Brittles
MARCH—Assorted Chocolates up to $1.15
APRIL—$1.20 and up Chocolates; Chocolate Bars
MAY—Easter Candies; Cordial Cherries
JUNE—Marshmallows; Fudge
AUGUST—Summer Candies
SEPTEMBER—Uncoated & Summer Coated Bars
OCTOBER—Salted Nuts; Gums & Jellies
NOVEMBER—Panned Goods; 1¢ Pieces
DECEMBER—Best Packages and Items of Each Type Considered During the Year.

You'll make the Best line with BEST FOODS OILS



You can have the best line in chewy c
tions—kisses, taffees, nougats and others—
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Best Foods oils will help you produce
confections efficiently and economically—a
ing manufacturers everywhere will testify.
Best Foods will always be best for you in
of service and reliability as well as quality.

NUCOLINE — *76°*

FILBISK — *hydrogenated coconut oil, 92°-110°*

S-70-XX Hard Butter — *exclusive, patented and uni
in quality; controlled low-melt fractions.*

Available in desired melting points.

YOU DO BETTER WITH BEST FOODS

THE BEST FOOD
INC.

Code 8V7
Assorted Jellies
1 lb.—89¢

(Purchased in a candy store, N.Y.C.)

Appearance of Package: Good
Box: Square, one layer type. Red glazed paper top, name printed in blue. White paper wrapper. A number of company stores printed in blue, tied with blue grass ribbon.
Appearance of Box on Opening: Good
Assorted Gum Drops:
Colors: Good
Texture: Good
Flavors: Good
Opera Drops:
Colors: Good
Texture: Good
Flavors: Good
Assorted Gum Squares:
Colors: Good
Texture: Good
Flavors: Good
Gum Strings:
Colors: Good
Texture: Good
Flavors: Good
Gum Rings:
Colors: Good
Texture: Good
Flavors: Good
Assorted Licorice Pieces:
Color: Good
Texture: Good
Licorice Flavor: Good
Fruit Slices:
Colors: Good
Texture: Good
Flavors: Good
Mint Marshmallow Gum & Marshmallow Oblongs: Good
Assortment: Good
Remarks: This box of gums and jellies is outstanding. The workmanship is of the best and the flavors are very good. The crystalizing is exceptionally good. We have examined similar candies at higher prices that could not compare with these candies. Cheaply priced at 89¢ the pound.

Code 8Y7
Jelly Eggs
1 lb.—29¢

(Purchased in a chain department store, N.Y.C.)

Appearance of Package: Good
Container: Cellulose bag printed in red and white.
Jelly Eggs:
Colors: Good
Finish: Slightly dull
Panning: Good
Jacket: Too thick
Center:
Colors: Good
Texture: Slightly tough
Flavors: Fair
Remarks: Suggest finish be checked, also centers as they were tough. We cannot expect too much at the price of 29¢ the pound.

Code 9K7
Sugared Hard Candy Sticks
12 ozs.—59¢

(Purchased in a department store, Chicago, Ill.)

Appearance of Package: Good
Size: Good
Container: Oblong acetate box. White paper seals on ends, printed in blue.
Sticks:
Colors: Good
Texture: Good
Sugaring: Good
Flavors: Good
Remarks: A well made hard candy stick and very good flavor. The best sugared stick that we have examined this year.

Code 9L7
Mint Puffs
4½ ozs.—49¢

(Purchased in a department store, Chicago, Ill.)

Appearance of Package: Good
Container: Round tin, key type. Colors red, blue, yellow and white.
Mints:
Colors: Good
Stripes: Good
Texture: Good
Flavors: Good
Remarks: A well made puff and good flavors. One of the best we have examined this year.

Code 9M7
Molasses Mint Candies
12 ozs.—80¢

(Purchased in a fancy grocery store, Chicago, Ill.)

Appearance of Package: Good
Container: Tall can, friction top, printed in a plaid design. Colors: red, brown, yellow, red, white and blue. Overall cellulose wrapper. Gold seal on top.
Piece: Piece is a hard candy cut wrapped in printed cellulose.
Color: Good
Texture: Good
Flavor: Good
Remarks: A fine eating molasses mint. Neat and attractive container.

Code 9A7
Starlight Hard Candy
In A Glass Jar
12 ozs.—59¢

(Purchased in a chain drug store, Chicago, Ill.)

Appearance of Jar: Good
Jar: Jar is a square-shaped, fancy set-in top sealed with tape. Foil label printed in green and gold.

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Bon bon coatings in pink, green, peach, yellow and white.

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BRAND

HAMBURGER KAKAO–und SCHOKOLADENFABRIK
GUSTAV HAMESTER
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Candies: Candies are wrapped in cellulose.
Colors: Good
Stripes: Good
Gloss: Good
Texture: Good
Flavor: Good
Remarks: A very attractive candy jar. Suggest assorted flavors. Most customers will tire of one flavor in hard candies.

Code 9C7
Fudge Brazil Bar
1⅝ ozs.—10¢
(Sent in for analysis #4798)

Appearance of Bar: Good
Size: Good
Wrapper: Inside wax paper wrapper; outside cellulose wrapper printed in gold, brown and red.
Bar: Bar is a thin layer of chocolate fudge, very thick coating with brazils on top.
Milk Coating: Good
Brazil Nuts: Good
Fudge: Good
Taste: Very good
Remarks: A different type of bar, very good quality. Should be a good seller.

Code 9D7
Marshmallow Filled Cones
20 cones—29¢
(Purchased in a chain drug store, Chicago, Ill.)

Appearance of Package: Good
Container: Polyethylene bag, paper clip on top printed in red.
Cones:
Colors of Marshmallows: Good
Cones: Good
Marshmallow:
Texture: Very tough
Taste: Fair
Remarks: Very cheap quality of marshmallow. Suggest marshmallow be checked as it was very tough.

Code 8I7
Lemon Hard Candy Sticks
8 ozs.—29¢
(Purchased in a retail candy store, Clarkskill, Ind.)

Appearance of Package: Fair
Container: Cellulose bag, paper clip on top printed in orange. Name in blue.
Sticks: About 50% were broken.
Color: Good
Stripes: Good
Gloss: None
Flavor: Good
Texture: Good
Remarks: A good eating lemon stick, one of the best we have examined this year. Suggest bag be printed in one or two colors to improve the appearance of the package.

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Remember the neighborhood grocer . . . how he rewarded the kids with a bag of candy when Dad paid his bill?

Now, with super markets and modern, streamlined merchandising, this friendly practice has gone the way of the cracker barrel and the pot-bellied stove. But, Clinton still gives a bonus — the quality that comes from nearly half a century of concentrated experience in the careful manufacture of corn syrups, starches and dextrose developed especially for candy manufacturers.

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CLINTON CORN PROCESSING COMPANY
CLINTON, IOWA

Our 50th Anniversary Year—1907-1957

The reasons for using gelatin are primarily based on physical properties. However, we should not lose sight of the fact that it is an excellent supplementary protein in the diet. It is included in many hospital diets, particularly for patients with gastrointestinal disorders. People with brittle fingernails have reported an improvement of this condition after inclusion of gelatin in the diet for a few weeks. Physical properties of gelatin which make it of value in confectionery products are: whipping property, it forms a gel, performs as a protective colloid and has adhesive or binding quality.

When a gelatin solution is agitated with air, a multiplicity of fairly stable air cells are formed. These air cells are further stabilized on cooling by the formation of gel structure.

Because of the protective colloid action, sugar crystallization is affected. The effect is in retarding crystal formation. A relatively small amount of gelatin tends to soften the grain in a high sugar formula. This retarding effect becomes more apparent with increasing gelatin concentration. Products in which this phenomena is taken advantage of are: patties, lozenges, bon-bon coatings, panned coatings, donut glaze and water icings. The effect is to produce a smooth texture instead of a hard grainy one which would be obtained without the addition of gelatin. The binding quality also comes into play and the candy or coating is less brittle. Effectiveness of the gelatin in retarding crystal growth is related to gel strength. That is, products of higher bloom are more effective than those of lower strength when used in the same amounts.

In candy items where there is excessive graining and the desire is to not increase such ingredients as corn syrup, invert or sorbitol, because of their humectant property, we suggest you try adding a small amount of gelatin.

Moisture retaining or binding property has been ascribed to gelatin. This is so to some extent but the product cannot properly be called a humectant. In some cases the moisture loss is slowed because of a skin formation or case hardening resulting from surface drying. This skin formation or case hardening acts as a barrier to retard free passage of moisture and thus slows down the drying of material encased within. This phenomena can be demonstrated by preparing two concentrated sugar solutions, one of them containing 2 percent of dissolved gelatin. The solutions are then exposed to the atmosphere. A crust of sugar crystals will form on the surface of both. However, the one containing gelatin is more impervious to moisture passage and after a few days it will be noted that the volume of the plain sugar solution has been reduced by the greater amount.

As just mentioned, some gelatin is used in patties, lozenges, bon-bon coatings and panned coatings to control sugar crystallization and serve as a binder. It is also used to some extent in making aerated creams and nougats. In these applications it is sometimes used in combination with soya albumen or egg albumen.

However, the greatest volume of gelatin used in the confectionery field goes into marshmallow items to stabilize the foam structure. For this reason, most of our remarks will be toward selection of gelatin for this application.

As stated before, the successive extractions of gelatin vary considerably in physical properties. Because of this, blends can be prepared to meet the requirements for different marshmallow applications. Formulas, operating conditions and aeration devices vary from one plant to the next. Personal preferences for texture of a given marshmallow piece will vary between individuals. The gelatin manufacturer can be of help in selecting the particular type of gelatin that performs to best advantage in an individual plant. In some cases, it is necessary to try out a few different types of gelatin to find the right blend for a particular application.

If the desire is to make a very light and tender marshmallow, a low test gelatin, such as 75 Bloom, may fill the bill. This is particularly the case when a batch beater is used for aerating the batch, because the lower gel strength products tend to aerate more readily than those of high gel strength.

Many marshmallow novelties are individually packed and because of this the marshmallow can be low density and tender. A great deal of resiliency is not required. For this type product, which is quite often deposited from pastry bags, a low Bloom gelatin is an advantage.

For molded novelties, it is common practice to use a medium test gelatin with good whipping properties. A fairly fast setting time is desirable so that pieces can be removed from molds as soon as possible. Good resiliency is also desirable without too much toughness. These various factors are influenced by the type gelatin used. In some cases, the desired product can be made with a reduced amount of high test gelatin by using a continuous type aerator. However, it is more usual to use a medium test gelatin in the range of 150 to 225 Bloom.

Many plants making marshmallow novelties are small in size and as a rule the novelties are of a seasonal nature. Equipment cost is a major factor and for this reason most of the plants making the novelties use batch beaters. In these units, the whipping factor of the batch is important. As stated before, the lower Bloom gelatins have the greatest foaming characteristics and, therefore, are used to a greater extent in novelties than high Bloom gelatin. On the other hand, where continuous aearation devices are used, and air is forced into the marshmallow under pressure, it is possible to use a reduced amount of high test gelatin.

In selecting a suitable gelatin for white cast marshmallow, the specifications are somewhat different than for novelties. The desired marshmallow is one that has good resiliency without being overly tough and stringy. This type product is usually packed in pliable transparent bags. These bags are packed in fiber cartons with dividers to prevent crushing of the marshmallows. However, in the retail outlets, these bags may be stacked five to

ten high. This is rough treatment for a tender marshmallow and must be considered in the production of this piece.

Another point to keep in mind is the ultimate use of this item. The pieces enrobed with chocolate or rolled in toasted coconut are obviously consumed as confections. On the other hand, the greatest volume of marshmallows are the plain white ones containing a small amount of vanilla flavoring. Only a limited number of these are consumed as a confection. The remainder are used in conjunction with other products. Some are used to decorate hot chocolate. They make a delightful addition to fruit salads. They also add the finishing touch to a delicious sweet potato pie. The point which we are trying to bring out is that a certain amount of toughness may be desirable in white marshmallows to prevent a rapid disintegration or melting away when used in salads and baked foods.

The type gelatin and amount are factors in the texture of marshmallow. To have a certain amount of tenderness but still have enough toughness to stand up under rough handling, it is customary to use gelatin in the range of 200 to 250 Bloom. It is possible to make good cast marshmallow with 275 or even 300 Bloom gelatin in reduced amounts but operating conditions are more critical. Setting time is much faster and unless a pressure depositor is used there is apt to be trouble at the depositor because of the fast set. Small variations in amount of gelatin are also reflected in greater variation in the finished marshmallow than when using lower Bloom strength products.

In pieces like bars and novelties which are enrobed with chocolate, it is desirable to have a tender marshmallow. This can be attained with a minimum amount of high Bloom gelatin in cases where an efficient aerating device is used. Where whipping is a problem a greater amount of gelatin must be used to obtain desired volume, a high gel strength would impart too much toughness. The solution is to use a gelatin with lower Bloom strength in the range of 150 to 200.

I don't want to give the impression that selection of the best gelatin for a given type marshmallow is merely a question of Bloom test. Many of you have compared gelatin of the same Bloom test from different sources in your marshmallow product and observed differences in the finished marshmallow. Whipping rate, setting time, and body of the finished marshmallow may have been different. The problem is to select the one that works to the best advantage in your particular product.

There has been considerable discussion in the past regarding the optimum pH for whipping marshmallow. In my observation there is not a universal value that applies to all cases. It is only one of the factors and optimum value varies with formulation and type of gelatin. In one case the best pH may be around 4.5 to 4.8. In another, it may be 5.5. Many of you may have observed that the finished marshmallow has essentially the same pH value as the gelatin used in the formulation. This is due to the high buffering property of gelatin as compared to sugar. Because of this fact the gelatin manufacturer tends to prepare his gelatin at the pH where it performs to the best advantage in marshmallow.

The type of gelatin used has a definite effect on the whipping and texture of the finished product. However, we don't want to leave the impression that gelatin is a cure-all. Things like moisture content, amount of corn syrup, and kind, type and amount of moisture retaining ingredients all enter into the picture. Operating conditions and type of beater or aerator must also be considered. In presenting the effects of different types of gelatins we are assuming that all other factors are constant.

In the making of grain marshmallow there is a greater variation in types of gelatin used than in any other type. The range is from 75 to 250 bloom. However, the greatest preference is in the range of medium test products. Type of gelatin used is influenced by facilities used for curing marshmallow. When a hot room is used, the tendency is to use a gelatin of around 225 Bloom. There is less tendency for breakdown of the structure than when using low Bloom products. On the other hand, a finer grain structure and shorter texture can be obtained by using an increased amount of low Bloom gelatin.

The point which we have been trying to put across is that gelatins vary considerably in basic properties. For this reason, it is possible to select a type which works to best advantage in each marshmallow application. Conditions vary from plant to plant and you can help the gelatin supplier select the best product for your application by relating your particular problems to him.

Philadelphia retailers elect

The new officers of the Retail Confectioners Association of Philadelphia are: President William K. Mallon, Vice President Charles P. Crawford, second Vice President Joseph R. Stutz, Corresponding Secretary Carl J. Hesch, Financial Secretary Samuel Shumer, Treasurer Harry L. Young. Directors are John Behlou, Ira Minter, Jacob Shelly and John A. Young.

Kostick to Loft's

Samuel R. Kostick has been named Vice-President of Loft's Candy Corporation. Mr. Kostick was with Loft's from 1940 to 1954 as Director of Store Operations.

Auto Wrappers names reps

Auto Wrappers (Norwich) Ltd., Edward St., Norwich, England has appointed the following representatives in this country: Andrew Brown, 5743 Lincoln Ave., Hollydale, Calif., Western agent; A. S. Jewett, 505 Fifth Ave., New York, Eastern agent.

The big box of chocolates

This is Allan Hilliard with the "big box of chocolates"

"I'll take a box like that one out on the porch," is the most frequent request of customers visiting Hilliard's Kitch-In-Vue Candies, North Easton, Massachusetts.

The box referred to is five feet long, and four feet wide. It sure looks real, and customers see it from a half mile away as they drive going or coming from Cape Cod on State Highway 138. Chocolates displayed in it are each almost a foot in diameter, with dark, milk and white coated pieces, in the same assortment as the regular pack to be purchased inside.

There is quite a story behind this big box on the front porch. It began when Doug Hilliard was still in the service. Everbody had his dream of what he was going to do when he got his discharge, and Doug, an amateur sculptor and artist, visualized an astounding package, such as this, which would slow down some of the Cape Cod tourist traffic.

Douglas Hilliard, manager of the Hilliard West Hartford, Connecticut store, left the service and built the box in 1953. "It took me five months, working, of course, just in my spare time, and all the weekends," says Doug. "I made it from plaster of paris, which I've used in the past for various other projects. Each piece is molded just as our real chocolates, using window screening, plaster of paris and the correct color paint. Matching the paint to the color of the various coatings was the hardest."

The sides of the box are wooden boards, and the full box, packed with 34 pieces, weighs just 150 pounds.

The box has been in snap shots daily, as tourists photograph their children beside it in various poses. Inside the store, on the walls, Alan has placed more of the individual pieces, so that the motif of the huge box is carried into the store.

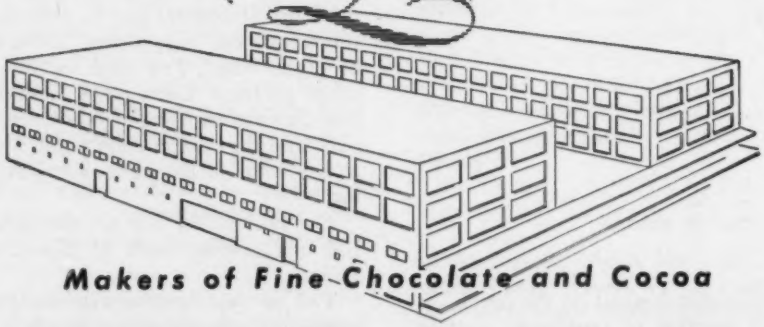
Today, four years after putting the box on the porch, there are few folks living within fifty miles of North Easton who don't know who you are talking about when you mention the candy store with the "big box of chocolates on the porch."

Fanny Farmer's Early American Shop

The new Fanny Farmer Candy Shop in Rockefeller Center, New York City, is a complete departure from the usual Fanny Farmer Shop. The design is based on an Early American living room, complete with open fireplace, lounge, chairs, antiques and other items of that period. While the serving and display pieces are strictly modern, they do use an Early American wood finish to carry the theme.

Customers may leisurely select candies in the relaxed home-like atmosphere or may take advantage of specially designed self-service and express service facilities.

MERCKENS



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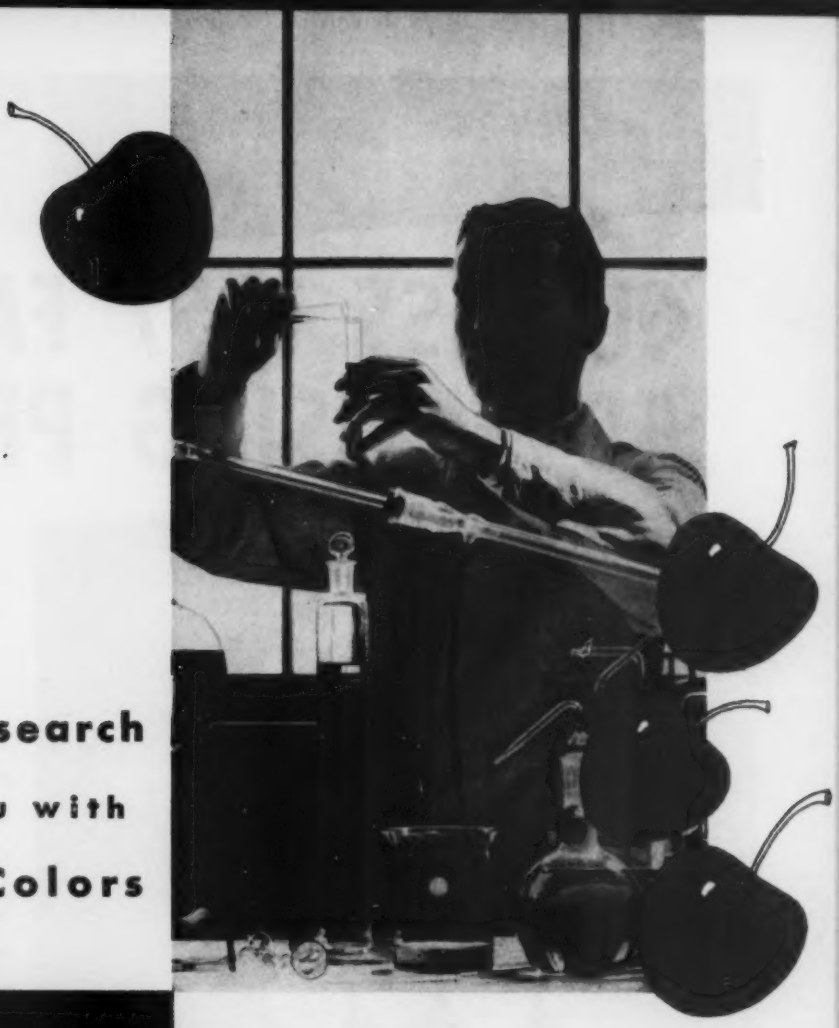
Visit our exhibit at the Candy Show September 15 through 18 at the Benjamin Franklin Hotel, Philadelphia.



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Meanwhile, our Technical Service Laboratories have lent prompt, practical help on necessary re-matches. New color formulations have been worked out to put even more eye-appeal into many processed foods.

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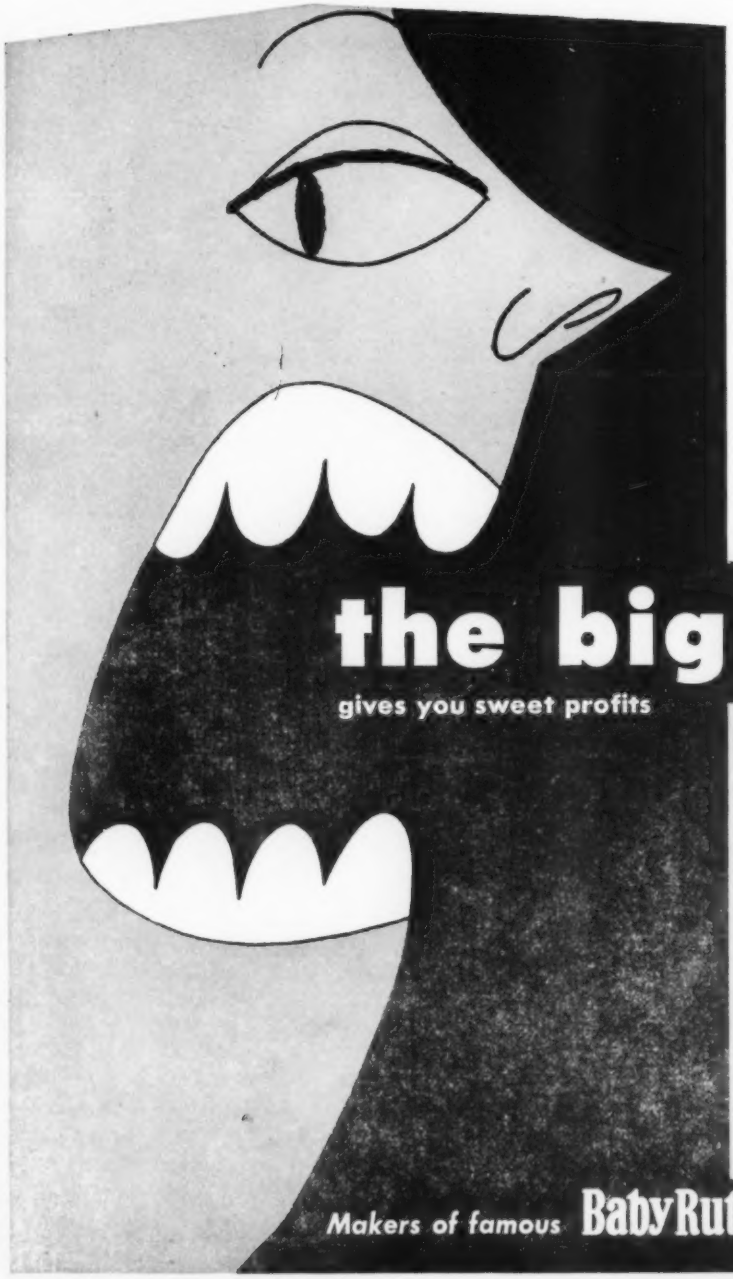

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STOCK AND FEATURE America's favorite candy names . . . Baby Ruth, Butterfinger . . . and the boxed bite-size GOLDEN LINE . . . Baby Ruth Nuggets, Butterfinger Chips, Coconut Grovettes, Caramel Nougats, Mint Patties and Jelly Strings.

CURTiSS CANDY COMPANY
Otto Schnering, Founder
CHICAGO 13, ILLINOIS

Makers of famous **Baby Ruth®** *and* **Butterfinger®**

Texture control of candy bars through aeration

BY THE RESEARCH AND DEVELOPMENT STAFF
Lenderink & Co., Holland

Compound confection is a term sometimes used to describe the ever popular filled candy bar, for the reason that various bulk ingredients and various basic types of candy are often combined in its make-up. Nevertheless, it would be equally true to say that the majority of these well known lines is fundamentally a nougat, since nougat in one form or another is almost always the cement which is relied upon to bind the various parts of the whole together. Nougats, moreover, are extremely versatile in respect of eating texture, being easily adapted to any consistency between soft and sticky, tough and chewy, hard and brittle, or even short and friable.

A nougat is essentially a cooked sugar syrup into which a certain amount of air has been incorporated in a very finely divided form. The principal factors which control the eating texture of any particular sample are the temperature to which it has been cooked, the proportions in which different sugars are present, the presence or absence of fats or gelling agents, and the quantity and fineness of sub-division of the incorporated air.

The degree of cooking adopted principally fixes the moisture content of the cooked syrup and experience shows that the most satisfactory bar centers are generally within the range of 8% to 12% moisture content—the higher value for the softer bars and for those which are to be processed on the starch mogul, the lower value for the harder types and for those which will be processed by pouring, cooling and cutting. The basic relationship between the cooking temperature of a sugar syrup and its moisture content is shown in Fig. 1, which is constructed from data tabulated in "Chemistry, Flavouring and Manufacture of Chocolate Confectionery and Cocoa" by H. R. Jensen (1931). The information conveyed by a diagram of this type can never be absolutely accurate as the precise relationships are slightly modified by a whole number of minor variables, such as the types of sugar present in the particular syrup, the atmospheric pressure at the time of cooking and so on. It is a whole lot better than nothing at all, however, and its employment as a practical guide to the effect produced by any particular degree of cooking can be confidently recommended. For practical application purposes, however, remember that the completed candy will probably not contain cooked

sugar alone—further additions of moisture containing ingredients, especially frappes and fondants, are usual and must be taken into account when estimating the moisture content which will result from any particular formula.

Even within the comparitively narrow range of moisture contents cited, it is possible to obtain a wide variety of eating textures, principally by control of the amount of sugar grain permitted. An ungrained syrup in this moisture range is extremely tough, sticky and chewy, whereas a fully grained one is dry and short, even crumbly. At any given moisture content, the amount of grain which will be produced is determined principally by the mixture of sugars employed. Almost the whole range of possible sugar mixtures is met with in bar center work — the higher the proportion of invert and corn syrup, the less the graining that will develop at any given moisture content. Fig. 2 provides a simple guide to the proportion of grain which can be expected under any given conditions; it is reproduced from page 22 of the August 1956 issue of "THE MANUFACTURING CONFECTIONER", which see for full particulars. Like Fig. 1, it is only an approximation, if only because it is not always practicable to assess the amount of inversion which occurs during cooking, but it is again a very usable aid in practice. Remember that it tells the amount of grain which will develop when equilibrium has been reached and that this may well not occur till some days after the finished candy has been shipped from the manufacturing plant; equilibrium in a grained candy is almost always expedited in practice by a final addition of fondant or icing sugar.

Generally to be avoided in bar center work are the two extremes of undue dryness of execssive stickiness. Between the two is quite a range of possibilities and somewhere amongst them is the ideal — a satisfying, full-bodied texture and flavor; a consistency which is soft enough to cut with a knife (just) but not so soft that is all disappears as soon as it is put into the mouth; a specific gravity which is light enough to make some bulk but which is not so light that the consumer feels cheated; and, above all, an end product which is absolutely guaranteed not to stick to the consumer's teeth nor to break them!

It is here that aeration proves to be one of the most valuable features of candy bar work, for it is all but impossible to get the required compromise between hardness, chewiness and stickiness without the help of air. Air provides the element of lightness but it also has the all important property of modifying the natural tackiness of a moderate to low cooked syrup. It has a further importance in that it can produce a degree of rigidity in a center which would otherwise collapse and flow, but this stiffening effect can be produced in other ways as well, for instance by an addition of fat or a gelling agent. Common fudge is the best known example of fat stiffening of an un-aerated soft candy, whilst selected types of cooked starch jelly are perhaps the best example of "gel stiffening"

Figure 1

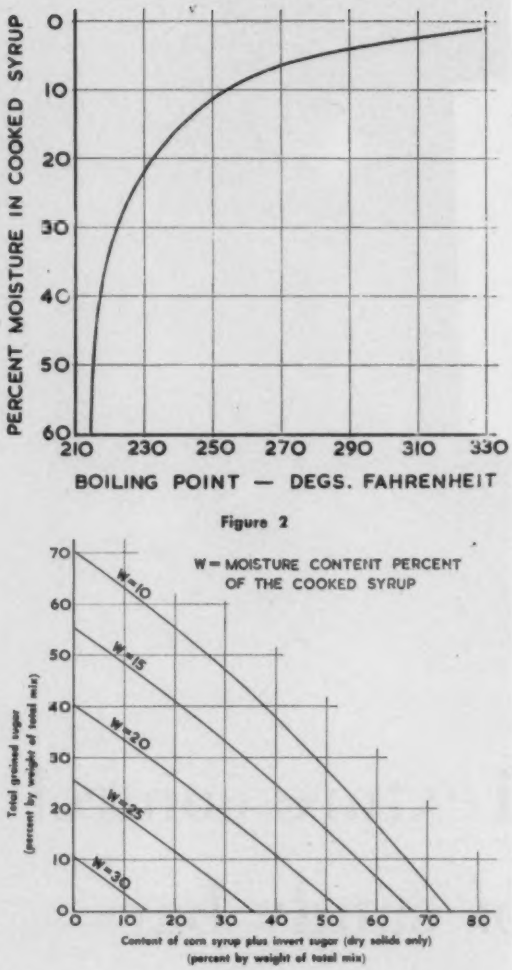


Figure 2

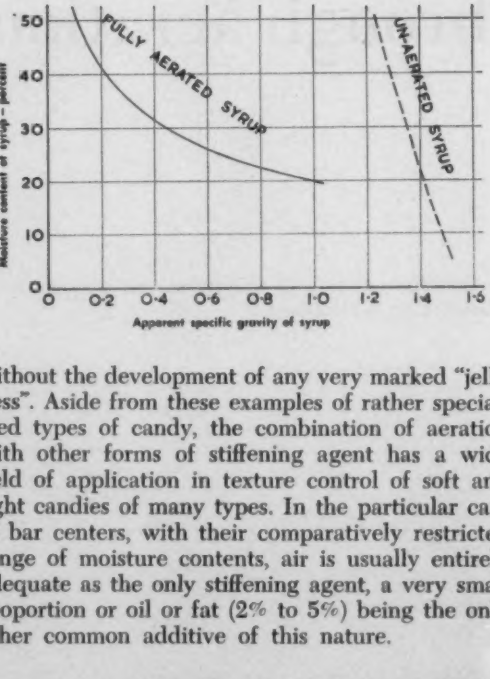
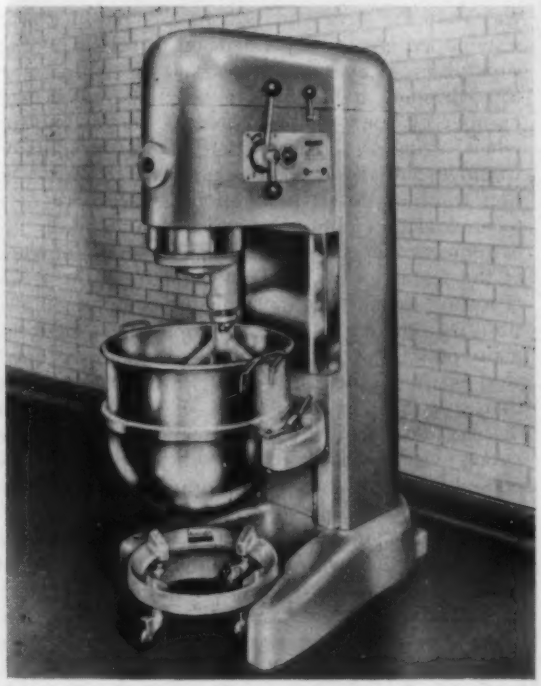

W = MOISTURE CONTENT PERCENT OF THE COOKED SYRUP
W=10
W=15
W=20
W=25
W=30
Total grained sugar (percent by weight of total mix)
Content of corn syrup plus invert sugar (dry solids only) (percent by weight of total mix)

Figure 3

without the development of any very marked "jelliness". Aside from these examples of rather specialized types of candy, the combination of aeration with other forms of stiffening agent has a wide field of application in texture control of soft and light candies of many types. In the particular case of bar centers, with their comparatively restricted range of moisture contents, air is usually entirely adequate as the only stiffening agent, a very small proportion or oil or fat (2% to 5%) being the only other common additive of this nature.



Typical planetary type beater.

The amount of air incorporated into a candy is simply expressed in terms of apparent specific gravity. Fig. 3, also reproduced from the August 1956 issue of "THE MANUFACTURING CONFECTIONER", shows the range of specific gravities obtainable from direct aeration of a cooked syrup in an open type of beating machine. Bar centers are seldom made lighter than an apparent specific gravity of 0.6 and seldom heavier than 1.1; the range 0.8 to 0.85 is a particularly popular one. That this the specific gravity is not obtainable by direct aeration, except by the use of a beating machine which works under high pressure, is no real obstacle in practice as these final specific gravities are quite easily obtained by suitable mixing of a high moisture content aerated syrup with a low moisture content cooked syrup.

The only practicable way of getting fine grained areation of a sugar syrup is to beat air into it in the presence of a small quantity of a whipping agent, usually a protein derivative which is added to the syrup in amount of 0.5% to 2%. Purchased frappes, often used by the smaller manufacturer, are essentially ready aerated syrups which can be stored in bulk. It is not practicable to process a frappe which is to be kept for any length of time to an apparent specific gravity of less than 0.6 to 0.7, so that the use of stock frappes is generally restricted to the rather heavier types of center. For most bar and nougat work, the uses of a freshly beaten syrup is to be preferred, both on grounds of economy and effectiveness. Modern whipping agents are extremely simple to use — simply a spoonful or so of powder to a pint of syrup — whilst beating equipment can be both low in first cost and simple to operate. We have come a long

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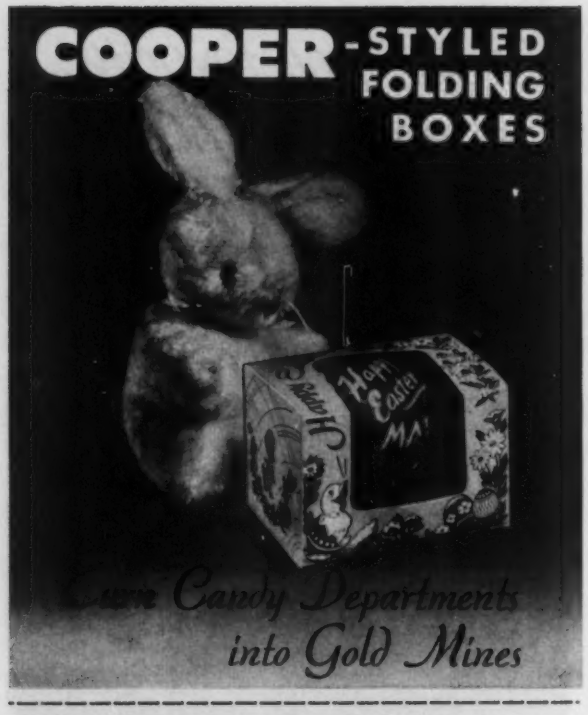

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way from the days when satisfactory production of a whipped syrup depended on specially skilled supervision of every stage of the processing, when the whipping agent had to be prepared a fixed number of hours before it would be needed and when, even so, a proportion of the production would eventually become scrap, due to fermentation troubles. Modern aeration is far more of a technologically controlled operation, actually an extremely interesting one from the point of view of the technologist. It is not possible in the space of a short article to go into all the complex of possibilities opened up by the employment of large scale pressure controlled and continuously operated beating processes and it must suffice to say that they offer a great field of opportunity for the technologically minded candy maker who knows what he is about and who appreciates the potenitalities of modern whipping agents. The more advanced types of plant are quite unnecessary for the manufacturer who operates on a more modest scale, however, for almost every type of common aeration work can nowadays be very easily performed on the simplest of beating equipment, albeit with the expenditure of rather more labor. The best results are obtained, of course, by the candy maker who understands the materials he is using and who is prepared to tackle problems scientifically and objectively. The essential difference between yesterday and to-day is not the type of plant employed; it is far more that the old time operator, due as much to the variability of his ingredients as anything, had to stand over every batch and use his skill and judgment to say what was to be done to it, and when. The modern operator, on the other hand, is essentially the technical executive who can develop schedules of processing and systems of control which he can rely on to function infallibly whether he is standing there watching the operation or not. Purposeful control of the eating texture of a nougat, based on a planned balance between the principal significant variables, is to-day one of the better understood arts of the candy maker; it is being increasingly applied to good advantage in an ever wider variety of candies.

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Reader board for Van Duyn

Van Duyn's Candy Company, a manufacturing retail confectioner, credits a new display sign outside their factory retail outlet in Portland, Oregon with a substantial increase in business. The "Reader Board" on the sign which allows Van Duyn to promote their specials to passing motorists is the feature that is credited with bringing in the majority of the new business for the store. This sign is changed regularly to maintain interest of those who pass by regularly.

Bulk sugar in Seattle

The Utah and Idaho Sugar Company has completed a $250,000 bulk service station in Seattle, Washington. The station will have a capacity of 900,000 pounds of bulk sugar in addition to 600,000 pounds of bag and packaged sugar. The firm operates two sugar plants in Washington and will supply industrial users with bulk and bag sugar from this new station.

Austrian candy to U.S.

A report from Austria indicates that 64% of all candy exports in 1956 came to the United States.

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For Sale: Friend Super-dreadnaught cutting machine, with automatic operation added; 2 Savage marshmallow beaters; one 30 HP package unit steam generator 125 P.S.I. burning No 5 oil. All good working condition, reasonably priced. Community Industries Ass'n, 811 S. Hamilton St., Sullivan, Ill.

For Sale: Peanut roaster with motor, 3 bag capacity; 1 Split Blancher with motor; 1 cooling table with or without motor. Write Box 775, **The MANUFACTURING CONFECTIONER.**

Whistle Pop Machine; Simplex Gas Fire Cooker; 24" Greer Enrober with Bottomer and Tunnel; gH-2 Package Machinery Wrapper; 100-lb Puller. Box 979, **The MANUFACTURING CONFECTIONER.**

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Continued on page 66

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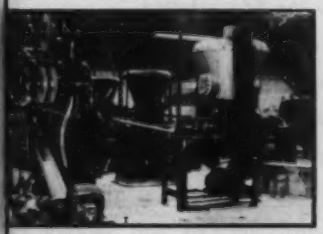

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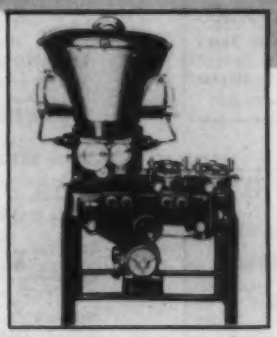

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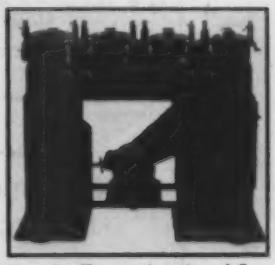

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By

Stroud Jordan, M.S., Ph.D.

and

Katheryn E. Langwill, M.S., Ph.D.

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In assembling this volume reference is made to applicable methods. Where satisfactory methods of analysis are of general knowledge they are incorporated by reference. All specially developed methods and procedures are incorporated in detail.

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